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WIDE VS. NARROW ROWS

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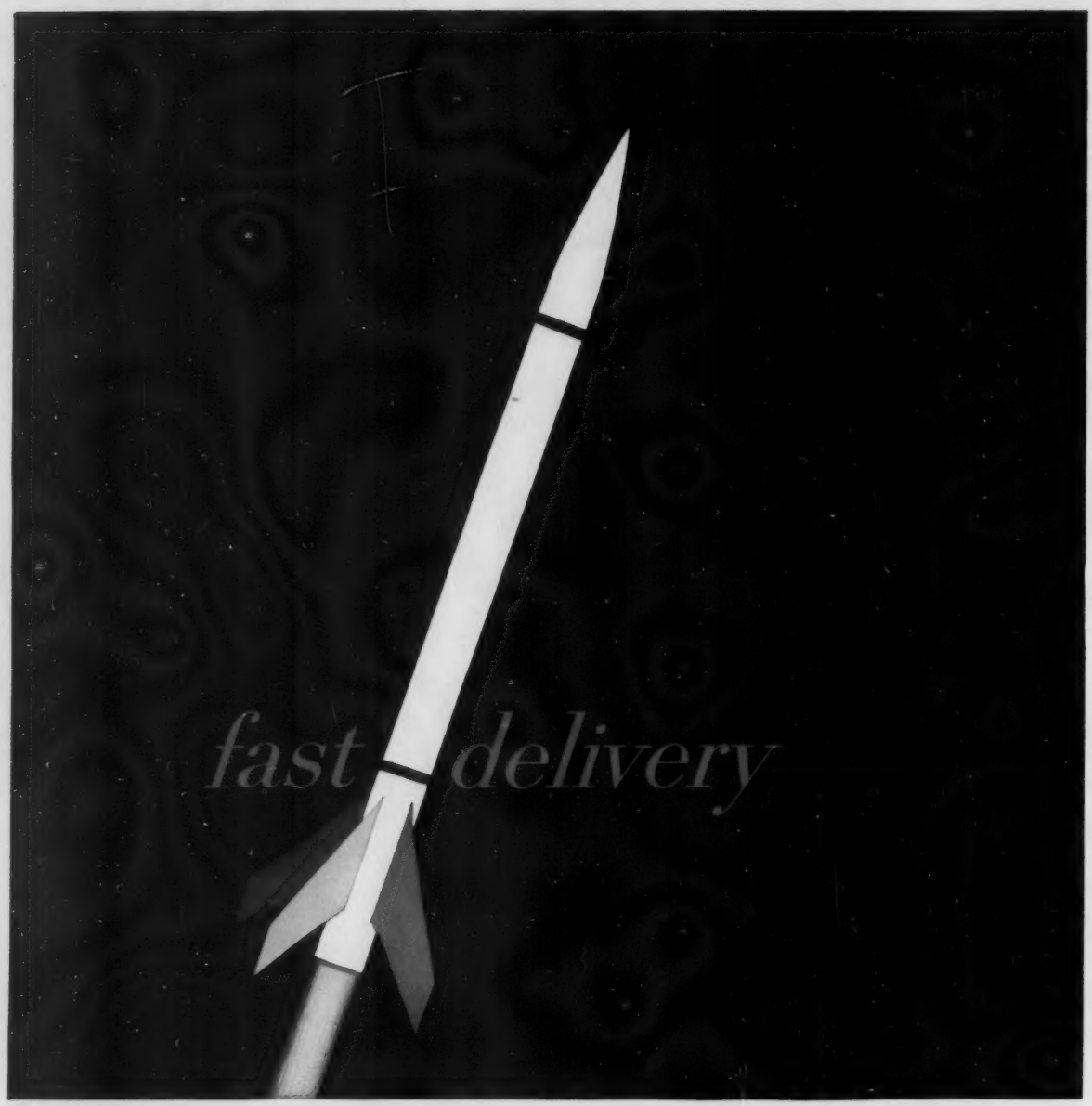
How to Produce Soybeans in the Mississippi Delta

Market Project in Spain and Italy

VOLUME 17 • NUMBER 5 MARCH • 1957



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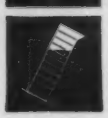

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THE SOYBEAN DIGEST

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Objectives of the American Soybean Association include the bringing together of all persons interested in the production, distribution and utilization of soybeans; the collection and dissemination of the best available information relating to both the practical and scientific phases of the problems of increased yields coupled with lessened costs; the safe-guarding of production against diseases and insect pests; the promotion of the development of new varieties; the encouragement of the interest of federal and state governments and experiment stations; and the rendering of all possible services to the industry.

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EDITOR'S DESK

. . . By GEO. M. STRAYER

Special from Tokyo, Japan

JAPANESE MARKET NOT YET WON

The operations of the Japanese-American Soybean Institute which are being carried on here under our Market Development Project utilizing P. L. 480 funds, along with monies from Japanese trade groups and from our ASA coffers, appear to be paying off.

Rumors flying around Tokyo now indicate that the Red Chinese are about to take a page from our book and invite a Japanese soybean delegation to their country in April. The delegation which visited the United States in August and September has been so influential that the Reds are now trying to win friends by using our approach. If the invitations actually materialize it is rumored they will invite about 15 persons from Japan, giving them the red carpet treatment.

We have not yet won the Japanese market. We will never do so. This country is so located that there will be continuing trade with China, some of it on a barter basis. Segments of the Japanese business economy would like to increase the sales of industrial goods to China, and if they succeed in doing so Japan will buy things in return. Soybeans are a very logical purchase, since they are necessary in the Japanese economy, lie only $6-per-ton freight distance away from Japanese ports, as compared with our greatly inflated ocean freight rates from the United States at present. With a $24 per ton rate now, how can we compete with $6?

We will win the Japanese soybean market just to the extent we are willing to work for it. Oilseed crushers like the high oil content of our soybeans. They like the availability of them, without the necessity of the bickering which takes place on Chinese purchases. They are more than pleased in the past with the general average quality of our soybeans, but they still object to our high allowable foreign material content. And they object strenuously to that occasional cargo which seems to slip through with a high foreign material content, largely based on the broken particles of soybeans which we still call foreign material.

Aggressive sales policies will pay off in this market over a period of time. The programs already under way to increase the total consumption of soybean food products will create more purchases of soybeans. Whether we sell them or someone else sells the soybeans to Japan depends on us. We must have a desirable product to offer. We must be competitive in price. We must be willing to take things into the United States from Japan in return for our sales to them. We must help create governmental policies here in Japan which will allow greater purchases of soybeans. We must use our influence wisely. We must help Japan solve its problems as a means of helping ourselves.

BROKEN BEANS ARE NOT F. M.

Each time I visit or revisit one of the countries which comprise our major export markets for soybeans I become even more convinced that we are just plain chumps if we do not change—and do it immediately—our classification of broken particles of soybeans as foreign material. It is being used against us at every turn. It will continue to be used against us until we make a change.

Chinese beans come into Japan with ½% foreign material, so I am told consistently. It is essentially correct. In their standards only those things other than soybeans constitute foreign material. They do arrive—some of them—with ½% foreign materials, or less!

And we, in our smugness, establish standards with 2% allowable foreign material in our No. 2 grade. But in that we include all pieces of soybeans broken small enough to go through an 8/64-inch round hole screen. They are not foreign material! Foreign material is something other than soybeans. Broken particles of soybeans produce soybean oil and soybean oil meal —in fact the yield of end products per unit of weight will usually be more than from whole soybeans. How can they be foreign material when they produce soybean oil and meal?

A good example of what we are doing to ourselves took place in November. A cargo of U. S. soybeans arrived in Japanese port. Graded out as U. S. No. 2 yellow (maximum allowable foreign material 2%) when shipped it was designated here as having 7.39% foreign material, according to samples drawn and analysis run by the official sampling and grading agency. The cargo had been divided. One portion did show the above figure. The other showed 2.04%.

At my request a determination was made on the portion of the foreign material included in the 7.39% which was broken particles of soybeans. The result? All but 1.7% was broken particles!

The moral? Broken particles of soybeans are not foreign material. We are purely and simply chumps so long as we classify them as such.

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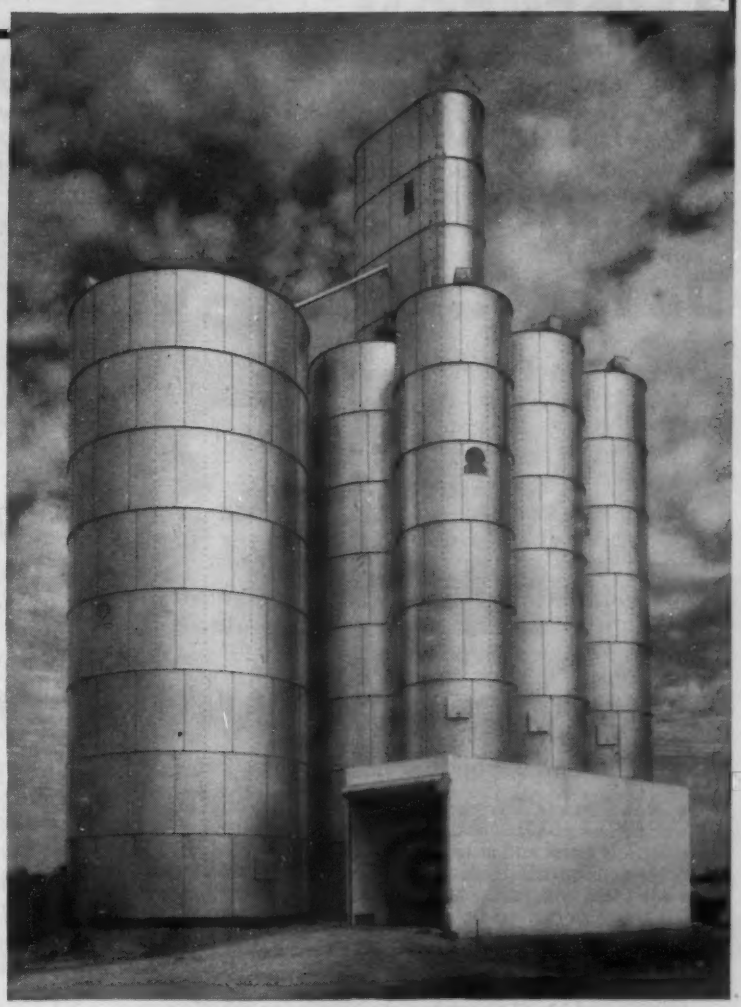

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AMERICAN SOYBEAN ASSOCIATION

Late News

Vol. 5, No. 3
Hudson, Iowa
Mar. 6, 1957

Published 12 times yearly as a service to the soybean industry.

SLOW CROP MOVEMENT

The 1956 soybean crop has been in very slow movement in recent weeks since the price drop and there is no apparent pattern now in evidence for disposal of the balance still held by farmers. Little movement is reported in most northern states where a substantial part of the crop is still being held.

Apparently farmers would rather hold for a while longer rather than take present prices. Some observers are of the opinion that **a 5c-to-10c rise in the market would start a fair movement.**

Our spot reports indicate that farmers are still holding 25% to 50% of the crop in Illinois, up to 50% in Iowa, 20% to 65% in Missouri and 25% in central and northwestern Ohio.

TALK ABOUT 1957 ACREAGE

No definite trend can yet be discerned toward either increased or decreased soybean acreage in the main northern areas in 1957. Most informed guesses as of this date are that **there my be little change from the 1956 acreage.**

Apparently the U. S. Department of Agriculture's announced support level of $2.09 won't have much effect on acreage as it was not unexpected. Low prices at planting time accompanied by poor experience in disposal of the 1956 crop would have more effect and would tend to discourage soybean planting.

The biggest unresolved question affecting the soybean crop is, of course, what happens to the corn acreage through the government program.

But J. E. Johnson, Champaign, Ill., says it is reasonable to assume that the 1957 soybean acreage will show an increase over that of 1956. He sees "even a tendency to grow soybeans after soybeans, a very unwise procedure."

Paul C. Hughes, Farmers Soybean Corp., Blytheville, Ark., believes the soybean acreage in his area will be down a little due to a larger small grain acreage, unless there is a wet June. Hughes writes some fields may be taken out of soybeans because of the soybean cyst nematode and that price at planting time will have an effect on acreage.

But Jake Hartz, Jr., sees a 5% soybean acreage increase in the Stuttgart, Ark., area.

Acreage increases in 1957 are predicted in North and South Carolina and Georgia, but no change is foreseen in Baldwin County, Ala., or Tidewater, Va. We have predictions from northeast central Iowa and eastern Wisconsin that there may be more soybean acres in those areas this year.

MOISTURE RESERVE LOW

Johnson at Champaign, Ill., reports that the Champaign area will enter the spring with the lowest subsoil moisture on record. **Most soybean country west of the Mississippi is still low in subsoil moisture** to a lesser or greater degree. Iowa moisture reserves are called 25% to 50% of capacity over most of the state.

Soil moisture is below normal in northern Missouri but good in the Bootheel and generally good in the Midsouth and some Southeastern States.

It is reported to be about normal in central and northwestern Ohio.

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REPORTS ON EXPORTS

In late February, the Communist Chinese, who had pushed their asking price on current soybean shipments way above U. S. prices in the Japanese market, **suddenly cut them back to levels below ours,** Geo. M. Strayer, executive vice president of the American Soybean Association, reported from Tokyo.

The Chinese were not moving their crop and took this drastic step to get back into the market, according to Strayer. He says the Chinese sales problem this year is complicated by the high percentage of damaged soybeans showing up in their shipments.

Strayer is just returning from Japan as the Soybean Digest goes to press. See his dispatch from Tokyo on page 4 for conclusions formed while abroad.

Howard L. Roach, president of the Soybean Council of America, Inc., left for Spain and Italy on Feb. 26 to make arrangements for marketing projects in those countries. See details on page 20.

Total Japanese imports of soybeans in 1956 were 61.9 million metric tons from the United States; 20.5 million tons from China; 1.6 million tons from Brazil; and smaller amounts from several other countries, according to a report.

As of Feb. 26, a total of 2.5 million bushels of soybeans was loading or scheduled to load out of the Port of New Orleans for export in the Feb. 25-Mar. 10 period, according to W. L. Richeson & Sons, Inc., New Orleans freight brokers.

Glenn Pogeler, North Iowa Cooperative Processing Association, Mason City, reports some soybeans moving out of his area for export.

SOYBEAN CYST NEMATODE

There will be no quarantine of the soybean cyst nematode until after further investigation. For further details see Washington Digest column. Research information was presented at the hearing in Washington, D. C., Jan. 31 to the effect that it may be possible to move commercial soybeans when properly handled safely under quarantine regulations out of infested areas. Observers believe the nematode may have been in the Mississippi Valley for some time.

Soybean processors continue operations at a heavy rate with over 28 million bushels processed in January. Our reports indicate that most processors are still operating 100%.

You will be receiving your copy of the 1957 Soybean Blue Book shortly if you have not already done so.

	Cash prices Feb. 27
Soybeans, No. 1 yellow, Chicago, bu.	$ 2.45¼
Soybean oil meal, Decatur, ton	46.00
Soybean oil, crude, Decatur, lb.	.13⅝

	Cash price to farmers for No. 1 soybeans Feb. 27	Cash price to farmers for No. 2 soybeans Feb. 27	Retail cash price for bagged soybean oil meal Feb. 27
Ala.	$2.40		$58
Ark.	2.28		
Ga.	2.20@$2.25		65
Ill.	2.23@ 2.33		62@$72
Iowa	2.21		
Mo.	2.27@ 2.36	$2.27	63
N. C.	2.22		
N. Dak.	2.05	2.00	65
Ohio	2.25@ 2.27		
Tenn.	2.25		56
Va.	2.11		

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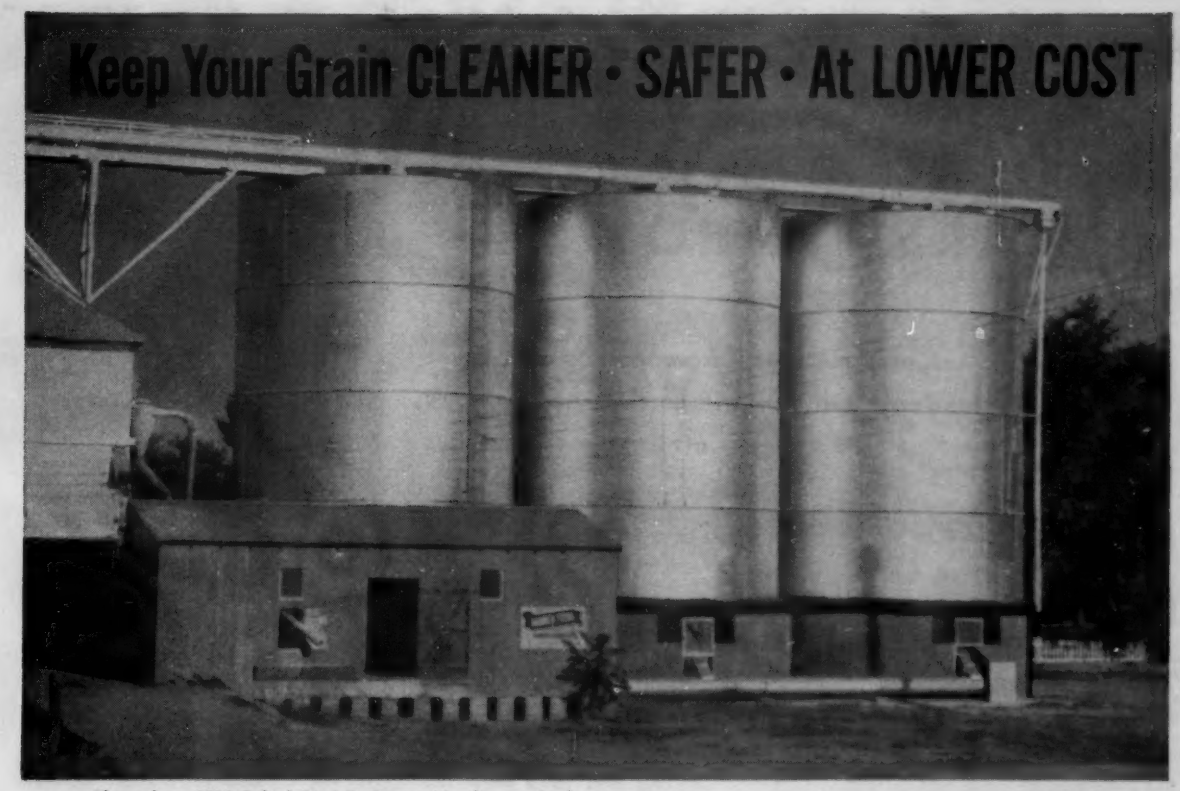

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BS&B Bolted Steel Tanks Provide Cleaner Storage Because... stored grain cannot get sticky or ferment when moisture content at storage is less than 13%. No moisture can pass through or condense on inside walls. Clean grain *stays* clean ...tanks empty clean!

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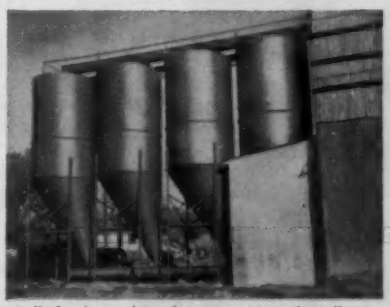

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For Northern States

WIDE ROWS vs. NARROW ROWS

Most producers and agronomists still favor standard corn row widths, but narrow rows pay off in some instances

Purdue Uni Photo

MAXIMUM YIELDS may be expected only when the row middles are completely covered with foliage regardless of the row width used.

(Staff Written)

IT IS STANDARD practice in most northern soybean growing states to grow soybeans in corn-planter-width rows of 36 to 42 inches, and to use the same planting and cultivating equipment as for corn and other row crops.

Most producers follow this practice even though some recognize that they might get higher yields with narrower rows.

Producers plant soybeans in wide rows to avoid investing in more than one set of equipment. They like to cultivate corn and soybeans in one operation. They do not want to spend precious hours changing their equipment from one row width to another at a time of year when there are never enough hours in the day to get the farm work all done.

There are exceptions. Where bean and beet planting and cultivating equipment is available farmers can plant in narrow rows.

Twenty-one to twenty-eight-inch rows are fairly common in northeastern Indiana and northwestern Ohio. Drilling four rows 28 inches wide with the grain drill is a popular practice in some areas in Indiana. Some Minnesota farmers also modify the grain drill for narrow-row planting.

Some soybeans are still drilled solid in northwestern Ohio, though this is practiced mostly on clay soils where special conditions make it advisable to work the soil as little as possible.

Are more northern farmers missing a bet by not changing to narrower rows, even if this means investing in special equipment?

C. R. Weber, U. S. Department of Agriculture and Iowa State College agronomist, points out that in Northern states of the latitude of Minnesota, 18 inches between the rows have given the highest yields; in the North Central states 21- to 24-inch rows, the highest; and as one goes south wider row widths have given highest yields.

Weber recalls that in 2 to 6 years of experiments in Iowa, Illinois, Indiana and Ohio, soybeans in 21- to 24-inch rows yielded 2 to 4 bushels an acre more than when planted in wide rows, 40 to 42 inches, or when drilled in 7-inch rows.

J. W. Lambert, University of Minnesota agronomist, says that early varieties in southern Minnesota in rows of 18 or 20 inches may be expected to yield several bushels more per acre than 40- or 42-inch rows.

Dr. Lambert states: "As beans move farther north earlier varieties are required. There has been a considerable acreage of soybeans in the Red River Valley in recent years, for instance. It appears to us that the early, rather short growing varieties, such as Acme, that should be used will require narrow-space rows to give the best yields. However, we shall require some more trials in this area to be sure."

But in spite of the yield advantage for narrower rows most northern agronomists still recommend planting soybeans in corn-width rows, or at most in the **narrowest widths that can be handled with existing equipment.**

Summary

You will probably wish to plant in corn-planter-width rows under the following conditions:

1—When you are far enough south so that the soybean plants shade the ground completely between the wide rows. Remember, that as you go from north to south the advantage of narrow rows becomes less. In the Southern states there is no yield advantage for rows narrower than 40 to 42 inches, as reported by E. E. Hartwig in his article in this issue.

2—Where it is not possible to control weeds adequately in narrower rows.

3—Where efficient operation calls for the use of corn planting and cultivating equipment.

On the other hand, you may wish to plant in narrower rows under the following conditions:

1—On low fertility soils or soils low in moisture where soybeans do not make heavy enough growth to fill in between wide rows.

2—When short-growing varieties are grown that do not make large plants.

3—When beans are planted late in the season due to weather conditions or following other crops.

4—In far northern locations. Where suitable planting and cultivating equipment for narrow rows is available.

In fact, Weber suggests the best general rule is to plant in rows as close together as will permit good weed control with available equipment.

He points out that there is only one reason to plant soybeans in rows in the first place, and that is to control weeds, since many producers still fail to use the rotary hoe, weeder or spiked tooth harrow timely and effectively. Plant in the row width to most readily control weeds and you will probably also get the highest yields. Weber says data indicate that solid drilled beans would probably give the highest yields if weeds could be controlled.

Weber suggests another good rule to follow is to plant soybeans in rows narrow enough so that the plants will cover the middles between the rows and shut out weeds.

Iowa and Purdue Experiment Stations suggest planting in alternate wide and narrow rows and using existing equipment to obtain some of the yield advantage of narrower rows.

Weber explains how it is done:

"If you plant two rows at a time —with an ordinary two-row corn planter—you can solve the problem this way: Shorten the gauge marker on the planter so alternate rows will be close together. Some of you may have planters that can be changed to narrower rows. In that case make the rows as close together as the tractor tread and your cultivating equipment will permit.

"By making alternate rows closer together, the cultivating problem can be solved by removing the outside shovels from the ordinary two-row cultivator.

"If you narrow your planter to 36 inches and shorten the marker to make alternate rows 24 inches then you will have a 30-inch average row width in your beans. A 42-inch spacing with a 24-inch secondary spacing works best with a 66-inch tractor tread. This will give rows averaging 33 inches apart.

"These examples of spacing won't give as high yields as 21-inch rows, but they will increase your yield with the usual equipment at little or no extra cost."

A state-by-state roundup (statements are by station agronomists):

South Dakota

C. F. Franzke: Soybean producers use the equipment they have on hand for corn production.

Kansas

Ernest L. Mader: In a 1956 study of row widths with several different varieties at Manhattan, Kans., a considerable increase in yields was obtained for 20-inch rows over 40-inch rows **where all weeds were removed from the plots.** In some instances the yield advantage for the 20-inch rows was over 50%.

But the Station continues to recommend planting in 40-inch rows due to the difficulty of controlling weeds in narrow rows.

Nebraska

Donald G. Hanway: The Nebraska Experiment Station recommends that farmers who cannot irrigate plant in the narrowest rows that they can handle with their equipment. Under irrigation we feel 28 inches may be very satisfactory where equipment is available for planting and cultivating at that row spacing and that yield increases large enough to make this rate profitable are likely to be obtained.

Minnesota

J. W. Lambert: When varieties such as Capital or Mandarin (Ottawa) are used in southern Minnesota it is difficult to get maximum yields in the conventional corn-row spacings of 40 or 42 inches. We believe 24 to 28 inches will give better yields. However, with such varieties as Harosoy and Blackhawk we doubt that there is much advantage for the narrow spacing.

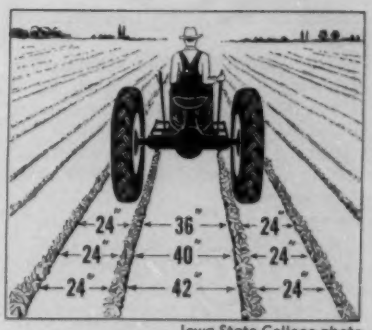
Indiana

K. E. Beeson and A. H. Probst: Narrower rows than for corn are advisable for maximum yields under many conditions. There is more yield advantage for close rowing of early maturing than midseason soys.

Yields on highly fertile soils do not appear to be reduced appreciably by drilling in corn-planter-width rows, as indicated by the soybean yield contest results in this state.

Ohio

P. E. Smith: Solid drill plantings tend to have a yield advantage on low fertility soils; and they tend to have a yield advantage regardless of date of planting or variety used in north and northwest Ohio. But the greatest disadvantage to solid drill plantings is lack of adequate weed control. In our experiments weed control in solid drill plots was by hand or if not hand-weeded often had to be abandoned because of excessive weeds.



Iowa State College photo

IF EQUIPMENT cannot be adjusted to close rows, alternate close and wide spacing will increase yield.

There is little difference between solid drill plantings and 28-inch rows in west central and southern Ohio but both are better than 42-inch rows regardless of date of planting or variety used.

Michigan

S. C. Hildebrand: We suggest a 28-inch row width as being the best to use under most conditions. Using this 28-inch recommendation as a basis, the grower usually considers what equipment he has on hand and for how many crops this equipment may be used to good advantage.

In our main soybean area most growers believe that a slightly narrower row than 36 to 40 inches would give them better yields, but they do consider the machinery and other crops as important in deter-

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mining the row width they will use.

Pennsylvania

J. B. Washko: Row spacing in Pennsylvania varies from 36 to 42 inches depending on the row spacing practiced for corn, so cultivators will not have to be adjusted when the farmer leaves his cornfield to cultivate soybeans.

Delaware

Henry W. Indyk reports that in experiments with the Clark variety in various row widths in 1955, 18- and 24-inch rows were superior to all others; but there were no significant differences in yield in 1956 experiments. In 1955 a deficiency of soil moisture resulted in rather short vegetative growth and the soybean plants did not meet in the row in the widest rows in most cases. But in 1956 weather conditions were conducive to rapid and excessive vegetative growth.

Quoting Indyk: We are continuing to recommend planting at the rate of 40 to 45 pounds of seed per acre in row widths which conform to and do not complicate other row farming operations. The most common row width is between 36 and 40 inches.

We have encouraged soybean growers to try narrower row widths if they do not burden them with additional expense and special equipment or entail an inferior job of weed control. We do have several growers who have been very successful in using row widths of 18 to 28 inches with the use of special cultivating equipment.

* * *

Rate of Planting

What is the best rate of seed planting per acre?

Recommended rates with seed of 90% germination are as follows:

21- to 24-inch rows, 1¼ bushels per acre.

30- to 36-inch rows, 1 bushel per acre.

40- to 42-inch rows, ¾ bushel per acre.

Drilled solid, 2 bushels per acre.

A good general rule to follow is to plant one seed per inch, providing the seed germinates approximately 90%.

Close plant spacings help to:

1—Insure a good uniform stand.

2—Encourage rapid early growth.

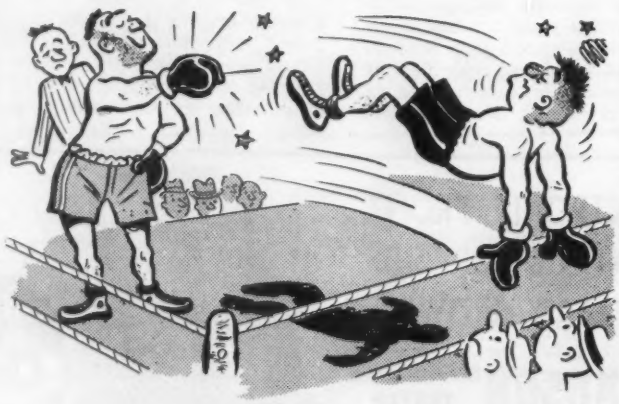
3—Facilitate weed control.

4—Prevent excessive branching of the soybean plant which makes for hard combining.

5—Induce pod-setting above ground level and consequently make combining more rapid with less seed loss.

Purdue Uni Photo

MOST IDEAL plant population in the row is six to eight plants per foot with uniform spacing between plants.



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TYPICAL GROWTH of Lee soybeans planted in 36-inch rows 8 weeks after planting.

Row Width and Rates of Planting in the Southern States

No yield advantage for narrow rows

By EDGAR E. HARTWIG*

RATE OF PLANTING and row width studies have been conducted in all of the major soybean producing areas of the South. Results of most of these studies are in fairly close agreement and indicate that the optimum rate within the row is 10-12 viable seed per foot and that there is no yield advantage for planting in rows narrower than 36 to 40 inches.

Plantings of less than 10-12 seeds per foot of row will frequently yield as well as thicker planting, but the seedling growth is at a slower rate and more difficulty is encountered in weed control. Planting at rates heavier than 10 to 12 seeds per foot of row gives better early season weed control, but a greater amount of lodging usually results.

Thirty-six or 38-inch rows have an advantage over 40-inch rows in that four rows can be handled with greater ease with a 12-foot combine.

In 1944, the three varieties Ogden, Volstate, and Woods Yellow were grown at four rates in the row—2, 3, 6, and 12 plants per foot of row at two locations in eastern North Carolina. For the varieties Ogden and Volstate, this would mean planting rates of approximately 10, 15, 30, and 60 pounds per acre, and for Woods Yellow the planting rates would have been approximately 13, 20, 40, and 80 pounds. Row width was 40 inches. Plantings were made in early May. All plantings were made at a heavy rate and thinned to the desired spacing after emergence. Yields in these plantings are reported in Table 1.

Table 1. Seed Yield of Three Varieties of Soybeans Grown at Four Rates at Two Locations in Eastern North Carolina in 1944.

Variety	Plants per foot of row	Yield in bushels per acre	
		Plymouth	Willard
Ogden	2	25.1	22.7
	3	31.5	25.2
	6	37.0	26.1
	12	41.7	28.9
Volstate	2	26.3	25.6
	3	32.5	27.2
	6	38.3	30.2
	12	39.8	29.3
Woods Yellow	2	25.0	11.0
	3	29.6	14.4
	6	29.1	15.1
	12	30.6	14.9

In these plantings harvest loss from combining the two and three plants per foot rate would have been greater than from the two thicker rates, because pods were borne much closer to the ground.

In 1947, 1948, and 1949, a rate of planting study was conducted on a Norfolk Sandy Loam soil at Rocky Mount, N. C. The Roanoke variety was planted in early May at the rates of 4, 6, 9, and 12 seeds per foot in 42-inch rows. Seeds having a laboratory germination of 90 to 95% were used. Seedling emergence ranged from 80 to 85% each year. Planting rate had no influence on percentage emergence in any year. A higher percentage of the plants survived to maturity in

* Research Agronomist, Field Crops Research Branch, Agricultural Research Service, in cooperation with the Delta Branch of the Mississippi Agricultural Experiment Station, Stoneville, Miss., and coordinator of the U. S. Regional Soybean Laboratory research program conducted in cooperation with the Southeastern states. Most of the North Carolina results reported are from work conducted by the author while he was working in cooperation with the North Carolina Agricultural Experiment Station.

the thinner plantings. Seed yields were low in each of the first 2 years, and very good the third year. Yield was not influenced by planting rate. The results for the 3 years are reported in Table 2.

Table 2. Seed Yield of Roanoke Soybeans Planted at Four Rates at Rocky Mount, N. C., in 1947, 1948, and 1949.

	Seeds per foot of row			
Year	4	6	9	12
1947	22.4	22.7	22.8	21.8
1948	22.0	24.0	22.8	23.0
1949	36.8	35.1	34.5	35.0

There was a greater amount of lodging in the planting of 12 seeds per foot than where 9 seeds per foot were planted. On the basis of these studies and observations at other locations, a planting rate of 9 seeds per foot was recommended for Roanoke in North Carolina.

In order to study the interrelations of row width and planting within the row, studies were made at Plymouth, N. C., using four row widths, 24, 30, 36, and 42 inches, and three rates within the row, 4, 6, and 12 plants per foot. All plantings were made at a thicker rate and thinned to the required spacing. Plantings were made in early May. Results for the Ogden variety are reported in Table 3.

Table 3. Seed Yield of Ogden Soybeans Grown in Four Row Widths and Three Rates Within the Row at Plymouth, N. C., for the 2 Years 1947 and 1948.

Plants per foot of row	Row width in inches 24	30	36	42
4	34.8	36.8	34.0	34.9
6	36.3	33.6	35.7	36.5
12	28.3	32.1	33.2	34.0

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These studies showed no advantage for planting in rows closer than the conventional 36- to 42-inch rows. Thicker plantings in the row had an advantage from the standpoint of early weed control, regardless of row width. Lodging increased appreciably as row width was reduced.

The plant population of 12 plants per foot appeared to be slightly excessive. A planting rate of 10-12 viable seeds per foot in 36- to 42-inch rows was concluded to be near the optimum for seed yield, early weed control, and a minimum amount of lodging.

H. M. Camper and Dr. T. J. Smith conducted studies at Warsaw, Va., for the years 1952, 1953 and 1954 in which they used 12, 24, and 36-inch rows and planted at the rates of 3, 5, and 7 pecks per acre. Average planting dates were May 10, May 24, June 8, June 23, and July 9. Narrow rows had no yield advantage over the 36-inch row for the Ogden variety in any of the first four planting dates. Narrow rows gave higher yields than the 36-inch row in the July 9 plantings, but Ogden yielded appreciably less when planted in narrow rows on July 9 than when planted in 36-inch rows on June 26 or earlier. Seven pecks per acre reduced yield of Ogden in the May and June plantings.

In 1949, Ogden soybeans were planted in late May at Stoneville, Miss., in four row widths—24, 30, 36, and 42 inches—at the rate of 10 viable seeds per foot of row. The mean yield for all plantings was 39.5 bushels per acre with no difference for row width.

In 1950, Dorman, Ogden, and Roanoke varieties were planted in early May in 28, 32, 36, and 40-inch rows on a sandy loam soil at Stoneville. All plantings were made at the rate of 10 seeds per foot of row. In these plantings the row middles in the 28-inch rows were shaded in 37 days as compared with 44 days for the 36-inch row. This difference might mean one less cultivation for the narrow rows. A greater amount of lodging resulted from planting in the narrow rows. Seed yields are reported in Table 4.

Table 4. Seed Yields from Dorman, Ogden, and Roanoke Soybeans Planted at Four Row Widths at Stoneville, Miss., in 1950.

	Row width in inches			
Variety	28	32	36	40
Dorman	35.5	44.6	44.0	49.5
Ogden	50.4	53.0	52.8	56.0
Roanoke	45.8	44.0	46.2	45.0
Mean	43.9	47.2	47.7	50.2

Planting rates in 36-inch rows were tested at Stoneville on a sandy loam soil for the years 1952, 1953, and 1954. The three varieties Dorman, Ogden, and Lee were planted at the rates of 6, 9, 12, 18, and 21 seeds per foot. Percentage emergence was not influenced by planting rate in any of these plantings. Seed yield was influenced very litt'e by planting rate. The mean yields for the three varieties in 1954 for the 6, 9, 12, 18, and 21 seeds per foot planting rates were 36.9, 35.4, 37.5, 36.8, 38.5, and 35.8 bushels per acre. The six-seed-per-foot planting required a longer time to give complete ground shading. Lodging was considerably greater in the 18 and 21 seeds per foot planting rates. For the Dorman and Lee varieties, the approximate planting rates would be 27, 40, 54, 80, and 94 pounds per acre, while for Ogden the rates would be approximately 30, 45, 60, 90, and 105 pounds per acre. The 9-to-12-seeds-per-foot rates gave excellent early growth with a minimum amount of lodging.

In 1955, Dorman and Lee were planted at three planting dates on a heavy clay soil at Stoneville, Miss. Three planting rates—6, 12, and 18 seeds per foot—were used in 36-inch rows. Percentage emergence was slightly higher for the thinner planting rates. Seed yields for the May 10 and May 31 plantings are reported in Table 5.

Table 5. Seed Yield in Bushels Per Acre of Dorman and Lee Soybeans Planted at Two Dates and Three Rates on a Sharkey Clay Soil at Stoneville, Miss., 1955.

		Planting rate in seeds per foot		
Variety	Planting date	6	12	18
Dorman	5-10	42.8	39.8	35.3
	5-31	34.3	33.3	37.3
Lee	5-10	33.5	38.4	38.1
	5-31	33.7	34.4	37.1

These plantings were made with an old style double disk opener which did not place the seed uniformly at the bottom of the furrow opening. As a result the percentage emergence was somewhat lower than has been obtained from the use of newer style double disk openers on the heavy clay soils. Therefore, the apparent advantage for thicker planting in late May or early June is not typical.

During the years 1950, 1951, 1952, and 1953 plantings of Ogden beans were made by Ralph Smith in west Florida at the rates of 30 to 120 pounds per acre. These plantings were made in 36-inch rows in early June. Results are reported in Table 6.

Table 6. Seed Yield in Bushels Per Acre From Planting Ogden Soybeans at Seven Rates in West Florida for the Years 1950 to 1953.

Pounds per acre						
30	45	60	75	90	105	120
36.5	38.0	36.8	36.6	35.9	37.2	36.3

In 1952, Ogden soybeans were grown in six row widths in West Florida. When each row received a

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comparable amount of fertilizer and approximately one seed per inch in the row, the yields for the different row widths were as follows: 12-inch, 35.2 bushels; 18-inch, 31.9 bushels; 24-inch, 32.3 bushels; 30-inch, 32.9 bushels; 36-inch, 34.2 bushels; and 42-inch, 30.6 bushels.

Studies conducted by the Arkansas Agricultural Experiment Station at Stuttgart in 1950 and 1951, at Clarkedale in 1950, and at Marianna in 1951 showed a distinct yield advantage for planting in narrow rows. Results obtained for the Ogden variety are reported in Table 7.

Table 7. Seed Yields in Bushels Per Acre From Planting Ogden Soybeans at Three Row Widths at Three Locations in Arkansas in 1950 and 1951.

Row width in inches	Pounds of seed per acre	Stuttgart 1950	Stuttgart 1951	Clarkedale 1950	Marianna 1951	Ave.
10	130	35.5	31.9	30.7	30.6	32.2
20	80	37.8	28.2	27.4	21.8	28.8
40	40	33.2	24.3	20.7	19.5	24.4

In these studies the 10-inch and 20-inch rows were hand hoed to control weeds and the 40-inch rows were cultivated.

Plant growth in the Arkansas tests was less than was produced in the other studies reported from other states. The reduced plant growth probably explains the greater differences in seed yield among the different row widths.

Perhaps growers in the North Central area will wonder why experimental plantings in their area show a yield advantage for narrow rows while most results in the South show no advantage for narrow rows. Much of the difference can be explained by the fact that adapted Southern varieties have much heavier foilage and will normally completely fill the row middles in 36- to 40-inch rows (fig. 1). Crowding these heavy foilage types into narrow rows results in increased lodging.

In this discussion, increased lodging from thick plantings or narrow rows has been emphasized. Readers may feel that the data presented does not show too much yield reduction from the heavy planting rates. However, severe lodging increases problems in maintaining proper combine adjustment, particularly height of cutter bar and reel, and will frequently result in greater harvesting losses.

Growers frequently say that they like to plant extra seed because they believe it will improve their chances of obtaining a stand. Excess seed is no substitute for a good seedbed. Two bushels per acre in a dry cloddy seedbed will fail just as surely as 10 viable seeds per foot in 36- to 40-inch rows.

Rate of planting studies with different varieties and strains of soybeans have shown little difference in the optimum planting rate in the row. Soybean varieties do differ, however, in the number of seeds in a bushel. A large seeded variety having only 2,000 seeds per pound will require 87 pounds of seed per acre to give the same planting rate as will be obtained by planting 50 pounds of a variety having 3,500 seeds per pound.

The most positive method of checking planting rate is to put seed in one hopper, drive at regular planting speed on firm ground, and count seed dropped in several 36-inch sections of row. With seed having a germination of 90% or better, one seed per inch will usually be an adequate amount of seed. Seed of any variety will differ slightly in size from year to year. Therefore, it is desirable to check planting rate every year ahead of planting time.

Soybeans and The Soil Bank

By DANA C. JENNINGS

IF YOU'RE putting any land into the Soil Bank, don't forget how easy it is to make that land a fertilizer factory instead of just a fertility-saver. Inoculated legumes will make nitrogen crop food out of the air and store it for you. Then when you put that Soil Bank land back under the plow, you'll get bigger cash crop yields.

Clover and alfalfa are the strongest nitrogen-fixers, capturing in the neighborhood of 200 pounds of air nitrogen per acre per year, worth about 1,500 pounds of sodium nitrate. To fix any air nitrogen, any legume must be inoculated.

If you've got a bushel or two of soybeans left over—too much to throw away and not enough to keep or sell, inoculate them and throw them into your Soil Bank mixture. Although soybeans are not the strongest nitrogen-fixers, they will do a surprising lot of good.

Plowed under as green manure (roughly equivalent to letting them stand unharvested on Soil Bank land) they compared favorably with cowpeas and with clover in Michigan and Connecticut studies. Corn yields jumped 45% in Arkansas following a plowed-under crop of soybeans, and cotton yields went up 48% in Mississippi (Kans. Bul. 306).

Any inoculated legume in your Soil Bank will share its extra nitrogen with the grasses growing with it to give you heavier cover for greater erosion control, rainfall absorption and humus buildup.

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Soybean Dust Problems Solved by Sturtevant Air Separator

RIGHT: Spencer Kellogg & Sons employee making classification adjustment on Sturtevant Air Separator in operation at Bellevue, Ohio, soybean meal plant. Separator minimizes air-borne dust losses while removing hulls and classifying end product.

LEFT: Two lead-off chutes at bottom of Sturtevant Air Separator in Spencer Kellogg & Sons plant. One chute in the closed circuit system sends to packaging all uniform size, dust-free meal while the other returns all undersize fines for pelletizing.

Closed Circuit Air Separation Cuts Losses, Keeps Plant Cleaner, Improves End Product

Dust — finer than 80 mesh — was accounting for 4 to 5 percent of the soybean meal production at the Spencer Kellogg & Sons plant in Bellevue, Ohio. Much of this dust was disseminated into the air during processing, becoming a total loss. And such free dust made working conditions unpleasant, plant and storage sheds untidy in appearance. Also, the proportion of dust retained in the end product was an annoyance to farmers and ranchers.

All of these problems have been solved by a Sturtevant Air Separator operating in closed circuit with a pelletizing machine. The processed soybean meal goes through the Air Separator at the rate of about 85 tph. Particles representing dust and hulls go out the fines chute to the pelletizer. The pellets are then ground and re-circulated through the Air Separator at rates to 10 tph, bringing the machine's total capacity to 95 tph.

The net result is that Spencer Kellogg & Sons now has cut dust loss to a minimum, no longer has any air-borne dust problems, and is producing a better standardized, dust-free end product. Sturtevant, the pioneer in centrifugal air separation, has once again helped to solve a precision classification problem — *and without an expensive, multi-unit installation.* Write today for more information. Address: Sturtevant Mill Co., 144 Clayton St., Boston 22, Mass.

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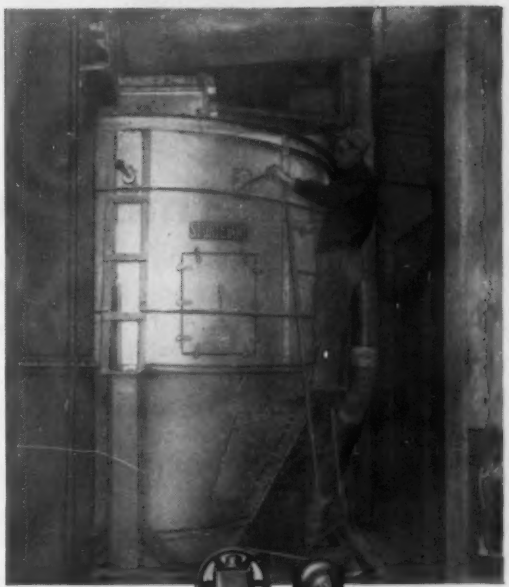

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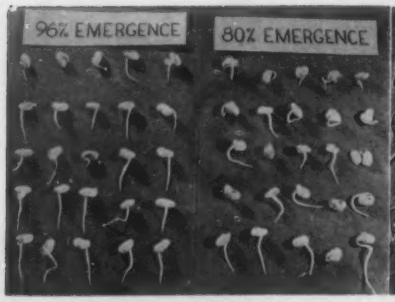


Fig. 1—Good and poor soybean seed after 4 days in toweling.

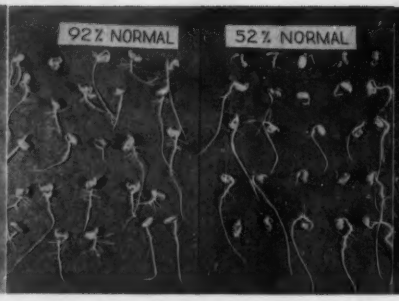


Fig. 2—Good and poor soybean seed after 7 days in toweling.

Fig. 3—Good and poor soybean seed after 7 days in sand.

Seed Germination Tests

Tests made in sand are the most reliable. Counting seedlings too early on a towel test may result in erroneous evaluation. Seedling emergence is not a measure of the ability of soybean seeds to produce healthy seedlings.

By L. E. EVERSON[1]

SOYBEAN seed is germinated following recognized procedures of testing. Persons making tests on soybean seed should be acquainted with these procedures so they may avoid errors. The classification of soybean seedlings as normal or abnormal requires judgment based on training.

Preparing the "Pure Seed"

Before planting seed for a germination test, a "pure seed fraction" must be prepared. Since soybean seeds are easily broken in harvesting and processing, there may be pieces of seeds of varying size in the sample. What should be considered "pure seed" for planting? Broken "seeds" which are half or less than half the entire seed are considered inert material. Seed portions, larger than half, even though damaged are considered "pure seed" for planting. Seeds which are small or shriveled are still considered "pure seed" as long as more than half the original seeds are present.

Planting and Counting

Seed testing "Rules" require that at least 400 seeds (in replicates of 100 seeds or less) be planted for all seed lots to be sold in commercial channels for seed purposes. The seed may be planted in sand or toweling. The chief advantage of sand is that it aids the analyst in classifying seeds as normal or abnormal. Seeds germinate and grow rapidly in sand. Therefore, by the end of the test period the normal seedlings are 3-6 inches above the level of the sand. This makes it easy to evaluate them. Most of the abnormal seedlings merely emerge from the seed coats but do not get above the level of the sand. These abnormal seedlings eliminate themselves in sand because, after their food supply is exhausted, they die. When germinated in toweling these abnormals may be quite confusing to the untrained analyst.

Emergence vs. Germination

Fig. 1 shows the emergence of good and poor seed lots after germination in toweling. Note the number of seedlings which have emerged from the poor seed lot. It is not evident whether these seedlings can continue growth or not.

If these seedlings were counted at this stage of growth, a serious error in counting might be made. Some of these seedlings are worthless because they cannot continue growth even under the most favorable conditions.

Fig. 2 shows these same seed lots after 7 days in toweling. It is now evident that certain seedlings of the poor lot cannot continue growth. You can now determine the germination.

Fig. 3 shows these same seed lots grown 7 days in sand. The abnormal seedlings have eliminated themselves.

1 L. E. Everson is associate professor of Botany and Plant Pathology and is in charge of seed testing services at Iowa State College.

Buy Your Seed on a "Pure Live Seed" Basis

By L. E. EVERSON[1]

The three main things you should consider in buying soybean seeds are:

1—Variety. Check the publication "Recommended Varieties" put out by your agricultural college before you decide on variety.

2—Weeds. Do not buy seed containing noxious weed seeds or a high total weed seed percentage.

3—"Pure live seed." Determine value of two seed lots of the same variety on the basis of "pure live seed." This is the simplest way to determine planting value. It considers both purity and germination. Here is the formula:

$$\frac{\text{Price per bushel}}{\text{Purity} \times \text{germination}} = \text{Price per bushel of "pure live seed"}$$

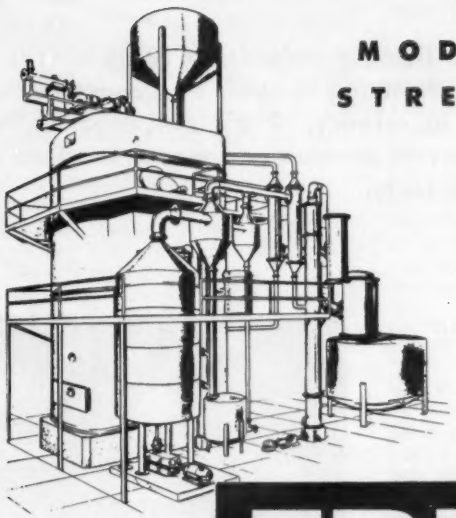
The following example illustrates the value of high and low quality soybean seed. Assume that two lots of a given variety are being sold at the local seed store. Lot A has a purity of 99%, a germination of 95% and is selling for $3.50 per bushel. Lot B has a purity of 90%, a germination of 70% and is selling for $3 per bushel. Which is the better buy?

Lot A $\frac{\$3.50}{.99 \times .95} = \$3.72$ Cost per bushel of "pure live seed"

Lot B $\frac{\$3.00}{.90 \times .70} = \$4.76$ Cost per bushel of "pure live seed"

From this example it is evident that what appeared to be a bargain (lot B) actually cost $1.04 more.

follow the trend



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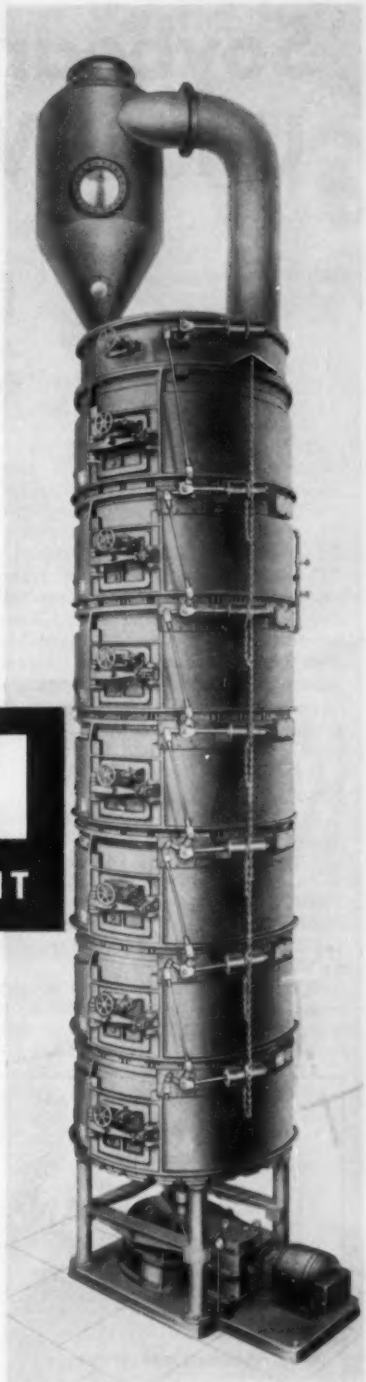

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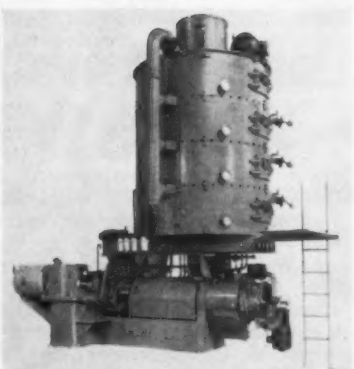

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Soybean Market Programs Under Way in Spain, Italy

Population is increasing and living standards are rising but the hand-produced olive crop is shrinking in these two countries. A mixed feed industry is in its infancy. Here is an opportunity for the U. S. soybean industry to develop permanent markets for its products.

HOWARD L. ROACH, president of the Soybean Council of America, Inc., left Plainfield, Iowa, on Feb. 26 for Spain and Italy. There he will complete arrangements begun last fall for soybean market development projects which it is hoped will result in greatly expanded markets for U. S. soybean products in those two countries.

He was accompanied by Mrs. Roach.

Roach has gone abroad to finish negotiations with Spanish trade groups, and with the Italian Association of Oil Industry, Fats, Soap and Related Products, and the Italian National Association of Producers of Livestock Feeds for their cooperation in the projects.

Ground work for the two projects was completed by Roach while in Europe last fall. He plans to open offices for the market development work in Madrid and Rome in the next few months.

Before the Council president enplaned, the project agreement for Spain between the Council and the Foreign Agricultural Service of the U. S. Department of Agriculture was signed. The agreements provide for the expenditure of approximately $120,000 for market promotional work in each country within the period of a year. Of this amount, $70,000 in each case will come from governmental P. L. 480 funds, and about $50,000 from the Council and Spanish and Italian trade groups.

Prospects seem good for a permanently broader market for U. S. soybean oil in Spain and Italy, and also for a growing market for U. S. soybean oil meal.

Both countries are longtime heavy consumers of olive oil, which their people produce and which they have a taste for. But recent heavy freezes have damaged the olive groves in both countries and olive oil production is down. Olive trees are also subject to recurrent drouths and production is cyclical.

At the same time the populations of both Spain and Italy are on the increase and the demand for fats and oils is expanding, so it is felt that both countries will of necessity continue to import vegetable oils in increasing quantities. The imported oil can just as well be U. S. soybean oil if we can learn to adapt it to Italian and Spanish usage.

Since the average per capita consumption of all fats and oils in Spain and Italy is well below the levels of most European countries, it is possible that well-executed promotional programs might greatly increase Spanish and Italian oil consumption.

Also, olives are produced by hand labor and the cost of production is high. As the wage level rises in the two countries—it is happening in Spain now—olive oil will become less and less competitive price-wise with U. S. soybean oil.

ROACH will activate market projects in Spain and Italy.

The mixed formula feed industry in Italy is relatively new and in early stages of development. As the industry develops increasing interest in the usage of U. S. soybean oil meal is expected.

The Soybean Council will participate in trade fairs at Bari, Palermo and Verona, Italy; Cologne, Germany; and Barcelona, Spain. At these fairs, the place of American soybean oil meal in livestock feeding will be emphasized.

J. W. Hayward, director of nutrition, Archer-Daniels-Midland Co., Minneapolis, Minn., is representing the Council, as a livestock nutritionist at the Verona Trade Fair Mar. 10-19. Activities to be carried on by the Council and cooperating trade groups in Spain and Italy

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under the marketing project will include:

1—Market research and analysis to determine per capita consumption of fats and oils in Spain and Italy and possible markets for soybean oil and soybean oil meal.

2—Study of government regulations and policies pertaining to purchase and sale of soybean products.

3—Educational work with trade groups and consumers.

4—Services of a skilled American oil technician for the vegetable oil industries, consumer groups and others in Spain and Italy in connection with packaging, utilization and merchandising problems.

5—Promotional programs at the consumer level to explain advantages and limitations of bland vegetable oils including soybean oil, and promotional work to increase per capita consumption of fats and oils.

6—Assistance in developing livestock feed formulas that will include soybean oil meal as the basic protein ingredient.

7—Assistance in formulation of programs to raise the nutritional levels of the Spanish and Italian peoples, with special emphasis on soybean products.

8—Visits to the United States of leaders of the Spanish and Italian oilseed industries for tours of inspection of facilities for production, handling, processing and refining of soybean oil as well as the manufacture of livestock feeds.

Roach will arrange for selected Spanish and Italian oilseed industry leaders to visit the United States to observe our methods and to acquaint them with industry people here.

The Council aims to have similar marketing projects under way in Austria, Greece and Germany in cooperation with Foreign Agricultural Service before the end of the year.

Mr. and Mrs. Roach expect to be abroad a little over a month.

First 1957 Trade Fair at Verona, Italy

THE U. S. DEPARTMENT of Agriculture announced that its first market-promotion display of U. S. agricultural products at international trade fairs in 1957 will be an exhibit of livestock feed at the International Agricultural Fair in Verona, Italy, Mar. 10 to 19.

The exhibit will feature the use of high protein feed concentrates, demonstrating to poultry raisers of Western Europe how more meat and more eggs can be obtained in less time and at less cost through the use of such feeds. The concentrates, of which soybean oil is the principal ingredient, are widely available for export from the United States. Also included in the exhibit will be U. S. feed grains.

The exhibit, to be presented in cooperation with the Soybean Council of America, will emphasize the changes in poultry feeds and feeding methods in this country since World War II which have raised the production of broiler meat per pound of feed to an all-time high.

There will be displays of well-fed poultry and poultry products at all stages of production, processing and marketing from the incubator to the dinner table.

The exhibit will be directed for the Department by Charles J. Witt, representing the Foreign Agricultural Service. Dr. Albert W. Brant of the Agricultural Research Service will serve the Department as poultry specialist of the exhibit. The feed industry will be represented by Dr. J. W. Hayward, research director, Archer-Daniels-Midland Co., Minneapolis, Minn.

In addition to the International Agricultural Fair at Verona, which annually attracts 500,000 or more visitors, the Department plans to participate with private industry in other international trade fairs, including Tokyo, Japan, May 5 to 19, Barcelona, Spain, June 1 to 20, and Cologne, Germany, Sept. 28 to Oct. 6, as part of its overall program of promoting markets abroad for United States farm products. A portion of the foreign currencies accruing from the sale of agricultural surpluses under Title I of Public Law 480 is available for this activity.

DR. HAYWARD will represent the Soybean Council at Verona.

Since the fall of 1955 the Department's foreign market promotion exhibits have been shown with the cooperation of U. S. trade groups and foreign importing organizations at fairs drawing a total attendance of more than 7.5 million persons in Europe, the Far East and Latin America.

Japan's 1956 Imports

JAPAN IMPORTED 26 million bushels of soybeans valued at $83.7 million in 1956 compared with 29.7 million bushels valued at $98.2 million in 1955, according to Foreign Agricultural Service, USDA. Over 70% of the total came from the United States.

Soybeans ranked sixth in value of all agricultural commodities imported into Japan in 1956.

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Sees Good Year for Exports

"DESPITE MORE foreign competition we expect a good export year for soybeans and edible vegetable oils," Martin Sorkin of the Office of the Secretary, U. S. Department of Agriculture, told the annual meeting of the National Institute of Oilseed Products at Phoenix, Ariz., recently.

"North European countries and Japan are likely to increase their takings of our soybeans," said Sorkin. "Western Germany will need more of our vegetable oils to support its expanded margarine production. Italy and Spain are taking large quantities of vegetable oils under government programs.

"To date about 500 million pounds of oil have been programmed for movement this year under the Title 1 P. L. 480 authority. Additional quantities are under negotiation. This has been a major factor in stabilizing marketing conditions for soybeans this year and has meant millions of dollars to domestic soybean and cottonseed producers.

"Exports of U. S. soybeans and edible vegetable oils will be influenced by the following factors in 1956-57: a continued increase in world demand; low stocks in other countries and the possible need to increase reserves; somewhat larger foreign production; and the movement of substantial quantities of U. S. vegetable oil under special programs.

"It is likely that even without taking account of the recent international disturbances, soybean exports will reach 75 million bushels or more and vegetable oil exports 1.1 billion pounds or more.

"The increase in U. S. and world population has been a key factor in increasing world demand for U. S. soybeans and vegetable oils to record levels in recent years. We expect this enlarged demand to continue in 1956-57.

"Demand in several countries is rising markedly because of improved economic conditions. This is true in Spain and is probably due to the heavy expenditures in that country for labor employed in U. S. air base construction."

Sorkin said the desire to reduce stocks of basic crops to manageable levels has resulted in two extremely significant programs, the soil bank and P. L. 480, each of which will affect the oilseed industry for some time.

He said present legislation requiring commercial corn farmers to stay within allotments totaling 37.3 million acres may result in a reduced production of soybeans in 1957 assuming normal yields.

The Eisenhower Administration has recommended a 1-year extension plus an additional billion dollars for the P. L. 480 program, Sorkin said.

The USDA expects to acquire a considerable quantity of 1956-crop flaxseed and possibly some soybeans, according to Sorkin.

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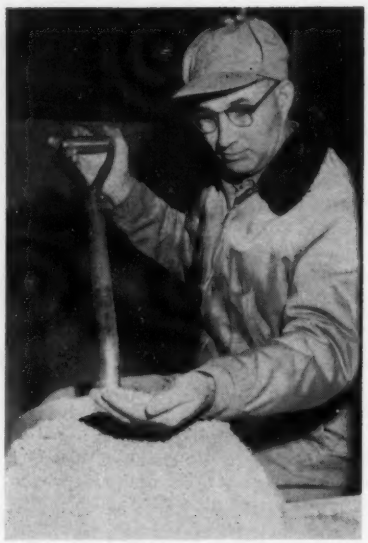


Loyal Werts

Iowa Contest Winner

A SOYBEAN YIELD of 42.56 bushels per acre brought the title of Iowa Master Soybean Grower to Loyal Werts, Winterset.

Second place in the contest went to George Mills, Earlham. His yield was 41.38 bushels per acre. A yield of 41.25 bushels per acre brought third place recognition to Francis Mapes, also of Earlham.

Awards were made at the Iowa Crop Improvement Day awards banquet at Iowa State College. Werts received the John Sand trophy, sponsored by the Sand Seed Service, Marcus; Mills, a silver plaque presented by the Iowa Soya Co.; and Mapes, a bronze plaque from the Iowa Cooperative Soybean Processors organization.

This was the first time Werts had entered a state contest. His winning yield was harvested from bottom land that had been cleared of timber only 3 years. The land had grown corn in 1954 and 1955. Werts grew the Hawkeye variety.

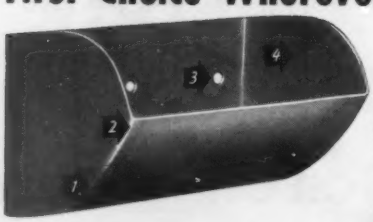
No manure or fertilizer was applied to the soil. It was spring plowed then disked and harrowed before planting on May 20.

The beans were drilled in 36-inch rows at a rate of a bushel and peck of seed per acre. A rotary hoe was used twice and the land was cultivated twice. The beans were hand-weeded twice.

Futures Trading up

TRADING in soybean futures on the Chicago Board of Trade was up 35% in 1956 over 1955, and was the largest increase of any grain, reports Robert C. Liebenow, Board president.

First Choice Wherever Grain is Handled



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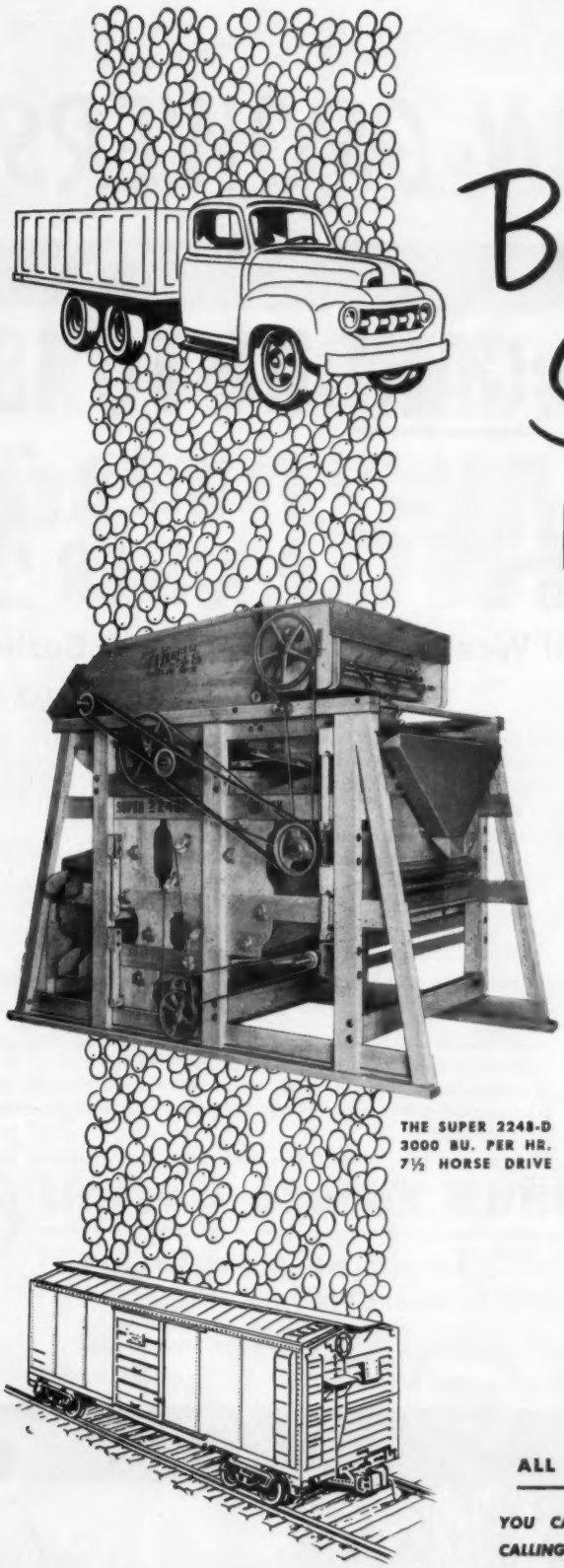

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A complete line of Clippers are available in sizes to fill every capacity and job requirement.

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Annual Weeds Can Rob up to 10 Bushels Yield —$22.50 per acre!*

Do you want to control weeds in soybeans with fewer cultivations with a non-irritating pre-emergence weed-killer? Then use Alanap-3 to gain up to *$21.75 per acre* at a cost of only $4.20 per acre based on a 14" band.

You also get these Added Bonus Benefits:

(1)—Faster combining, less combine wear,
(2)—No dockage,
(3)—Fits weed control program,
(4)—Weedy fields now become usable,
(5)—Earlier harvesting, earlier grain planting.

Calculated on a 40-acre field Alanap-3 can give you these gains:

Increased Yield	Cost Alanap-3	Gain
$870	$168	$702

At the same time, order your soybeans treated with Spergon—the best protectant against "damping off" and other fungous diseases so rampant in cold, wet planting weather. *Or* order your Spergon early and treat the seed yourself.

Here are the economics of Spergon-treating enough seed to plant a 40-acre soybean field:

*Agronomy Journal, Oct. 1956, article entitled "Effects of Annual Weeds on the Growth and Yield of Soybeans". †"Current Price Average"

EVERY 40 ACRES WITH SPERGON® SEED PROTECTANT

You can get a minimum gain of 2 bushels per acre increased yield from Spergon-treated seed. Many growers report increases up to 6 bushels per acre. Assuming only a 2-bushel increase worth $2.25† a bushel (or $4.50 gain per acre) with a cost for Spergon of only 30 cents per acre providing a net gain of $4.20 per acre.

Calculated on a 40-acre field, Spergon can give you the following gains:

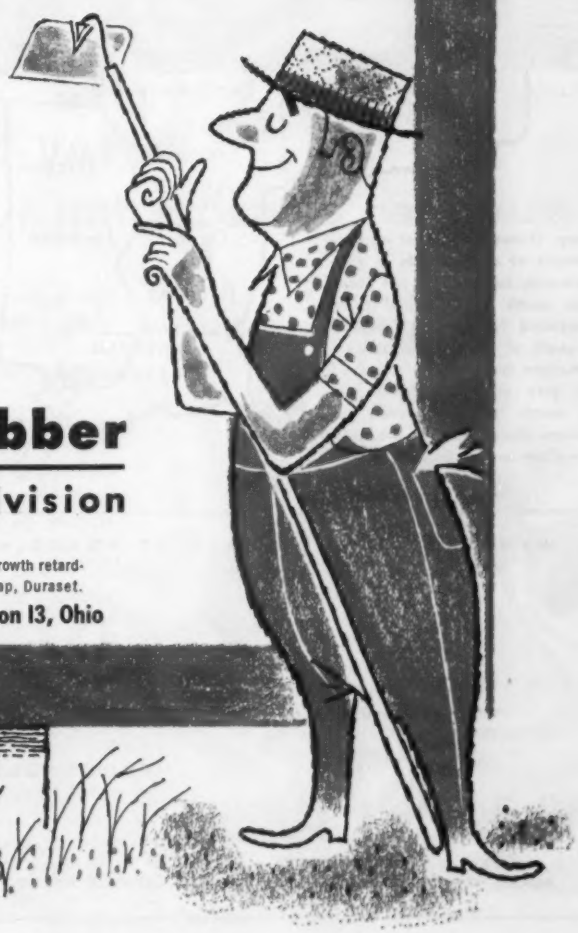
Increased Yield	Cost Spergon	Gain
$180	$12	$168

Now look at your total possible gain from use of Spergon-treating and Alanap-3 weed control:

Gains 40-acre field

Alanap-3	Increased yield	$870	Cost of Alanap-3	$168	Gain $702
Spergon	" "	180	" " Spergon	12	" 168
	Yields	$1050	Cost	$180	" $870

Total possible combined gain—$870 per 40 acres or $21.75 per acre. Order your Alanap-3 and Spergon early. Send for your free copies of booklets giving full information on use. OR visit your nearest dealer.



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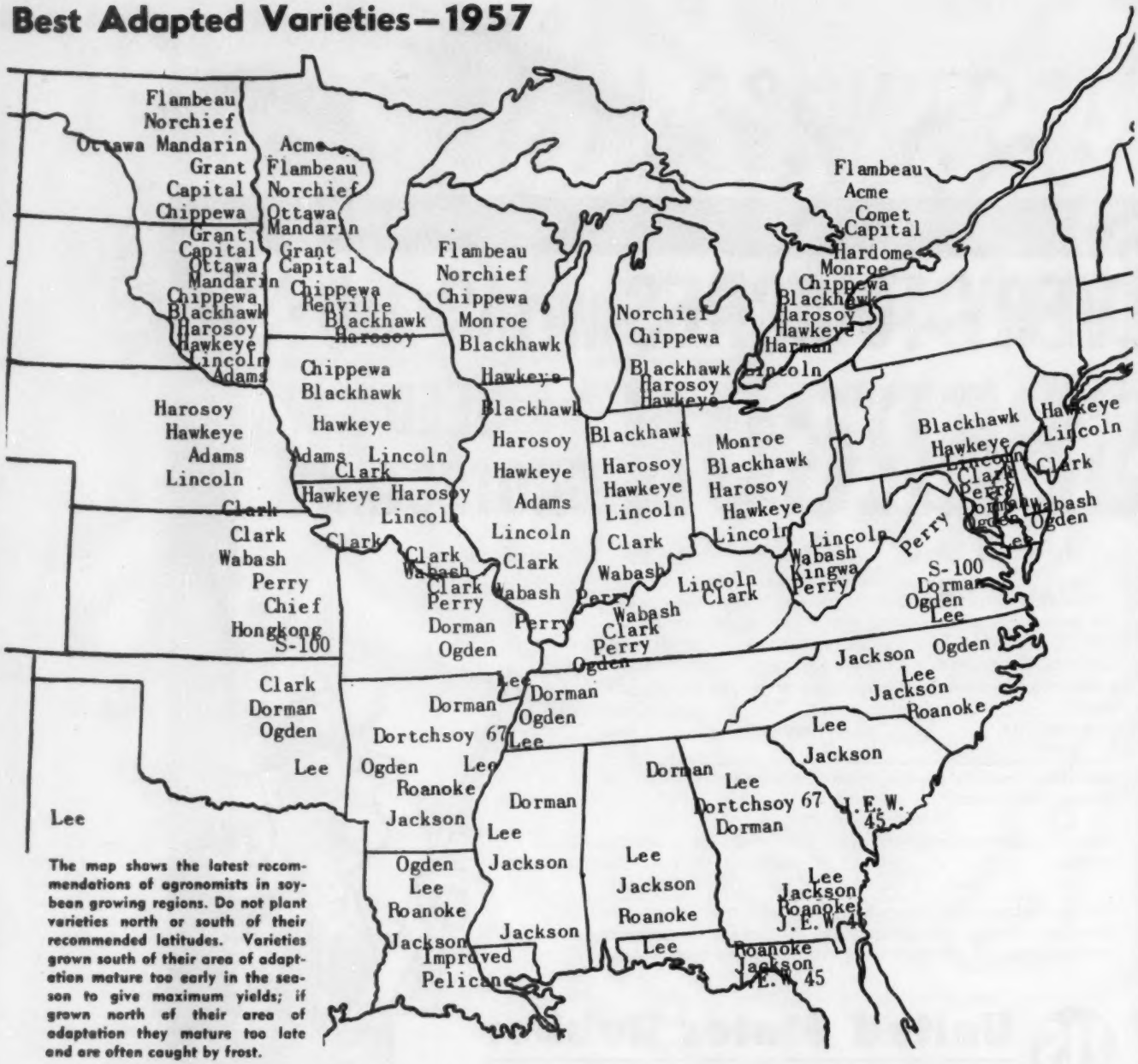

The map shows the latest recommendations of agronomists in soybean growing regions. Do not plant varieties north or south of their recommended latitudes. Varieties grown south of their area of adaptation mature too early in the season to give maximum yields; if grown north of their area of adaptation they mature too late and are often caught by frost.

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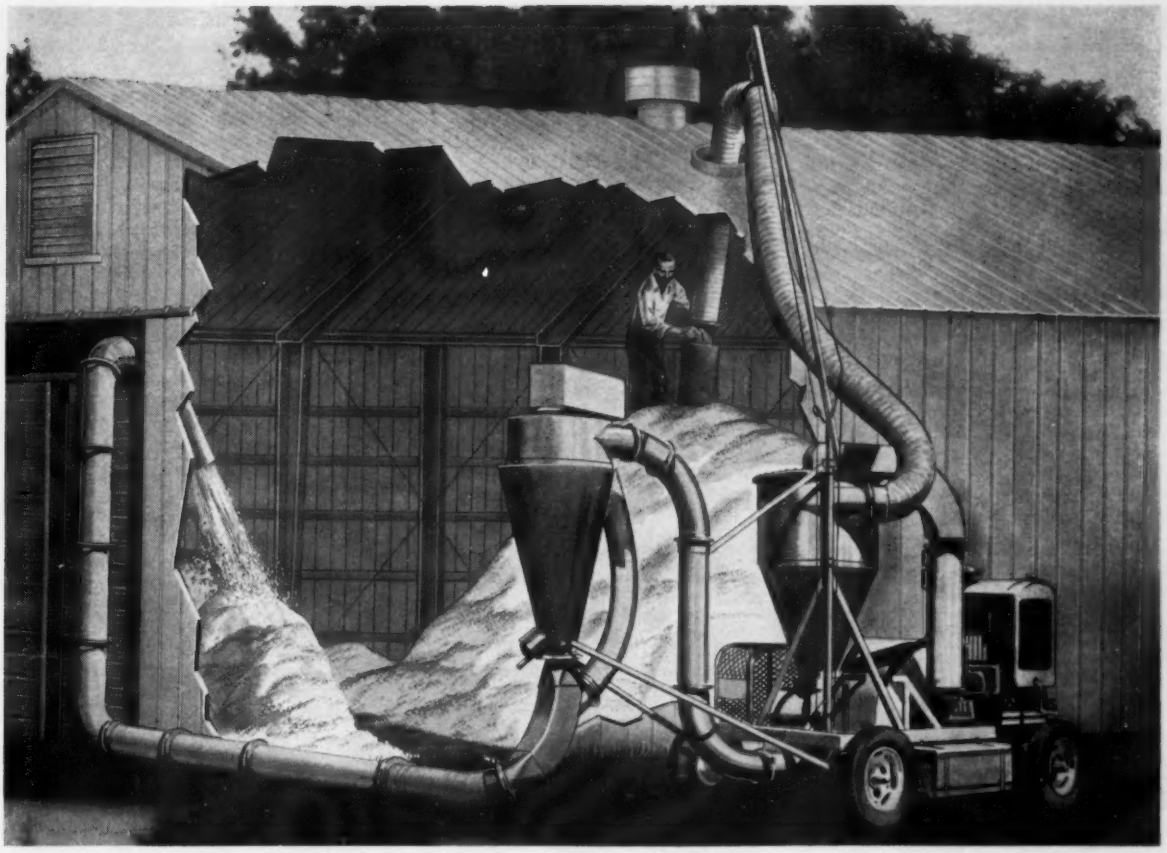

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When ordered to "clean it up or ship it out," you must either ship and lose storage revenue . . . or turn, clean and condition the grain. If your facilities are full to the legal limit, the *only* way you can turn in flat storage *is with a Vac-U-Vator*. Here's how it's done:

Use the "Vac" to remove a small amount of grain from one end of the building. The machine will convey it up to 300 feet—to your head house or some other temporary storage. Then, with the "Vac," progressively turn and clean the balance of the grain within the building as shown. Finally, re-convey the grain originally removed into the other end of the building.

The "Vac" moves grain at 1000 to 1600 bushels an hour, CLEANS IT AND CONDITIONS IT WITH NEW AIR AT THE SAME TIME. The entire operation is done by one man for about one cent a bushel *less* than it would cost if your facilities were *not* full and you had to use augers, a truck and several men to turn your grain into an equal-size vacant space.

Because you *can* clean and turn grain you would otherwise have to ship, thereby losing storage revenue and taking a grade discount—chances are your "Vac" will more than pay for itself in one season.

There's a Vac-U-Vator grain handling engineer in your area. He'll show you other ways a "Vac" will save you money by handling and conditioning grain in flat storage. Write for his address or additional information today.

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PUBLICATIONS

See Institutional Market for Soybeans

FOOD MARKET. Soybean meal's low cost and high protein value may open up a new market, although not a large one, in the institutional field. Use of protein-seed meals in certain foods also may help to solve food budget problems in institutions, according to a U. S. Department of Agriculture marketing research report.

Low-fat soy flour contains about 200 grams of protein per pound, compared with 48 grams per pound of white all-purpose flour. Lean round steak, which is considerably more expensive than soy flour, provides about 80 grams of protein per pound.

If mental institutions and homes for the aged supplemented their diets with only 0.03 of a pound of oilseed proteins per person per day, a market potential of 8 million pounds a year could be expected. This would be about an 11% increase over domestic consumption for 1954. While this would still make this market a secondary one, it would represent a substantial increase in soybean consumption. If all institutions except general hospitals used soy products as indicated, this market would be 77 million pounds a year.

Residential type institutions, with their steadily rising populations and conservative food money allowances, have a problem of providing nutritionally adequate diets. Protein foods usually take a large share of their food dollar. Supplementing diets with a less expensive source of protein, such as soybean flour or meal, leaves more money for other necessary nutrients, the report suggests.

Soy flour or grits cannot be expected to replace a large amount of meats and cereals, but some supplementation reduces the total amount spent for these foods. In two of the 16 non-federal institutions studied, a small proportion of soy flour was used with other protein foods. No more than 3 pounds of soy flour per 100 pounds of food was used at any time. In both of these institutions, the use of small amounts of soy flour resulted in important increases in the nutritional value of the diet. No objectionable differences in flavor or texture were noticed, and favorable comments regarding flavor were received.

INSTITUTIONAL MARKET POTENTIAL FOR OILSEED PROTEINS, Marketing Research Report No. 151, Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

NEMATODES. One of the most serious detriments to soybean production in Brazil is infection of the crop by root-parasitic nematodes, root-knot nematodes (*Meloidogyne* spp.) and meadow nematodes (*Pratylenchus* spp.)

The soybean varieties cultivated at present in Brazil have been severely injured by these root-parasitic organisms.

It is not known yet which of the two nematode groups is the more important, but the root-knot type is the more obvious from the growers' point of view because of the ready visibility of the galls.

In the state of Sao Paulo, Brazil, the soybean was originally cultivated by a relatively few Japanese growers, but its cultivation has greatly increased in the past 5 years. At the present time the government is also taking a great interest in the crop due to its remarkable nutritional and industrial value.

"MELOIDOGYNE INORNATA" SP. N., A SERIOUS PEST OF SOYBEAN IN THE STATE OF SAO PAULO, BRAZIL. Rev. Brasil Biol., 16 (1): 65-70. April 1956, Rio de Janeiro, D. F.

PRICE SUPPORT. One-fourth of the 1954 soybean crop in Minnesota was put under CCC loans, according to the University of Minnesota Agricultural Extension Service, which has compiled county information on CCC loans on several crops in the form of outline maps.

Percentage of the 1954 crop under loan in the 13 leading counties varied from 30% to 46%.

Value of the average loan on the 1954 soybean crop in Minnesota was $1,198, ranging from $360 in Mille Lacs County to $1,691 in Faribault County.

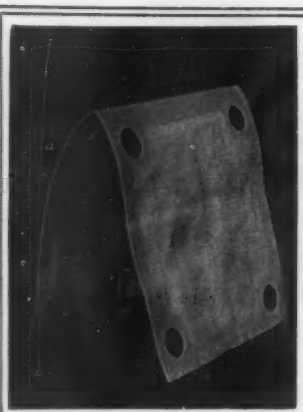
CROP PRICE SUPPORT PROGRAM IN MINNESOTA. COUNTY DATA. By L. J. Pickrel and F. L. Olson. October 1956. University of Minnesota Agricultural Extension Service, University Farm, St. Paul 1, Minn.

THE PHOSPHORUS CONTENT OF REFINED SOYBEAN OIL AS A CRITERION OF QUALITY. By R. E. Beal, E. B. Lancaster, and O. L. Brekke, Northern Utilization Research Branch, Peoria, Ill. Journal of the American Oil Chemists' Society, December 1956, pages 619-624. 35 E. Wacker Drive, Chicago 1, Ill.

NUTRITION IN VASCULAR DISEASE. By Laurance W. Kinsell, M. D. Borden's Review of Nutrition Research, Vol. XVII, No. 1, January-February 1956. 350 Madison Ave., New York 17, N. Y.

FATS IN THE DIET IN RELATION TO ARTERIOSCLEROSIS. By Charles D. May, chairman, department of pediatrics, College of Medicine, State University of Iowa, Iowa City, Iowa. Journal of the American Medical Association, Dec. 15, 1956.

CONTROL OF SOYBEAN INSECTS AND DISEASES. Circular 275. Ontario Agricultural College, Guelph, Ontario.



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MEAL MIXTURES. Chick and broiler rations containing cottonseed meal and soybean meal in equal proportions on a nitrogen basis are equal or superior to rations based on either meal alone *when the cottonseed meal used has 0.04% or less of free gossypol and 75% or more of nitrogen solubility in 0.02 N NaOH solution.*

The poultry committee and the committee on analytical measurements reaffirmed the validity of previous recommendations on meal mixtures at the fourth conference on cottonseed processing as related to nutrition held recently at the Southern Regional Research Laboratory in New Orleans.

The committees stated: "There is evidence that there exist cottonseed meals of 0.04% free gossypol but with less than 75% nitrogen solubility which, when substituted for 50% of the soybean meal in a practical broiler ration, give excellent performance."

The committee on swine stated that the available data indicate that a dietary level of 0.0045% free gossypol cottonseed meal can be fed without evidence of toxicity. A level of 0.0066% is the lowest dietary level that has been reported to be toxic."

CORNCOBS. If you are short of hay, you can feed ground corncobs and chopped cornstalks to cattle and sheep satisfactorily if these feeds are properly supplemented.

When high-energy feeds, proteins, minerals and vitamins are fed with corncobs and cornstalks along with other feeds—either without hay or with limited supplies—the results are often as good as with conventional rations where hay is the only roughage.

Substitution of corncobs and cornstalks for hay can be economically sound when hay is in short supply and high priced.

STRETCH HAY SUPPLIES WITH GROUND CORNCOBS AND CHOPPED CORNSTALKS. Pamphlet 232, Agricultural Extension Service, Iowa State College, Ames, Iowa.

ENERGY LEVEL. A high-protein-low-energy diet caused a reduction in the growth rate and reduced efficiency of feed utilization in Wisconsin experiments with crossbred chicks.

Twenty and 28% protein diets were used. Raising the energy level of the diet by the addition of fat increased the weight of the chicks at both 4 and 10 weeks and improved the feed utilization.

A RELATIONSHIP BETWEEN PROTEIN LEVEL AND ENERGY LEVEL IN CHICK RATIONS. By M. L. Sunde, University of Wisconsin. Poultry Science, Vol. 35, No. 2, March 1956, pages 350-354.

ENERGY, PROTEIN AND ANTIBIOTICS FOR GROWING TURKEYS. By Dr. C. W. Carlson. Feed Age, July 1956, 26-30. American Trade Publishing Co., 71 Vanderbilt Ave., New York 17, N. Y.

FEEDING CATTLE FOR BEEF. By R. E. Davis. Farmers' Bulletin No. 1549. 10c. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

Examine Problems of Oil Movement

PROBLEMS connected with movement of vegetable oils in bulk will be examined by three panels of experts appointed by the transport subcommittee of the International Association of Seed Crushers which held its first meeting in London Jan. 23.

During recent years the oilseed crushing industry has been concerned with the worldwide lack of standardization in the weighing, calibration and sampling of high value vegetable oils in bulk. Present methods of transporting the oils have also given cause for concern within the industry.

The panels will investigate and report on problems associated with weighing and calibration, sampling and analysis, improved methods of bulk transport, tank design and methods of discharge.

The first reports will be discussed at the 1957 IASC Congress in Rapallo in June. It is hoped that considerable improvement may be achieved in the existing methods of transport through cooperation of the vegetable oil trade.

A paper by D. A. Brett, "Movement of Vegetable Oils in Bulk," created great interest at the 1956 meeting of the IASC at Lucerne, and as a result the transport subcommittee was formed. It is composed of representatives each an expert in his own sphere from the United Kingdom, France, Belgium, Holland and Germany. Members include representatives of oilseed processors, shippers, merchants, cargo superintendents, chemists and tank operators.

C. A. C. de Boinville, Great Britain, is chairman; W. A. Sostman, Hamburg, vice chairman; and Harold Hoffman, secretary.

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"Am another satisfied customer. Made enough on JULY beans, FIRST WEEK I took service, to pay for service REST OF MY LIFE, and I figure on living a LONG time yet." IOWA.

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JAPANESE-AMERICAN SOYBEAN INSTITUTE

Manufacture of Natto Is Described

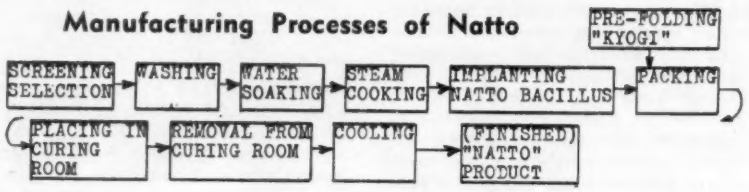
By SHIZUKA HAYASHI
Managing Director, Japanese-American Soybean Institute, Tokyo, Japan

Natto is one of the more popular protein foods in Japan and Mr. Hayashi sees possibilities for its consumption in other countries as well. He describes its manufacture here. A research study is under way to determine why U. S. soybeans are not suitable for the manufacture of natto.

NATTO is soybeans in a semi-digested state and contains several powerful enzymes. Natto not only is an easily digested food itself, but it aids the digestion of other foods as well. It is a popular food in the Japanese diet and is eaten every morning or even with every meal. Furthermore, a considerable amount of vitamin B-1 is contained in natto.

The manufacturing process is shown in detail at right above.

Manufacturing Processes of Natto



Screening Selection

The foreign substances mixed in with the soybeans must be removed by means of such tools as winnowing baskets or sieves. Because domestic soybeans contain little foreign substances, their impurities can be removed merely through the following washing process.

Washing

By the process of running clean water through the soybeans and washing them, such foreign substances as dirt, dust, bean particles, and sand are removed.

Water Soaking

The washed soybeans are soaked in water and made to absorb a suitable amount of water and become soft. The water-soaking time required is approximately 20 hours in winter. However, this time must be regulated in accordance with the kind of soybeans, their dryness, water temperature, and other factors.

Steam Cooking

The soybeans which have been made to absorb water and to expand are placed in a pressure cooker (capacity: 37.8 U. S. gallons). Steam is then blown directly into the cooker, and steam cooking under pressure is carried out through the bottom plate.

The optimum amount of steam cooking is such that the cooked soybeans become just soft enough to be crushed when pressed between one's fingertips. When a pressure cooker is used, the steam cooking time is shortened, and the cooking is completed in from 40 minutes to 1 hour. Two pressure cookers are installed and used alternately.

Implanting Natto Bacillus

The process of implanting natto fungus (bacillus natto) into the steam-cooked soybeans is carried out next. The steam-cooked soybeans are placed in a wooden barrel of approximately 9.45 U. S. gallons capacity. Into the soybeans is then scattered the natto bacillus diluted with water. The barrel cover is closed, the barrel is mounted on a rotating table, and turned very gently by hand to implant the bacillus uniformly throughout the soybeans.

Packing

The bacillus-seeded soybeans are next packed into "kyogi" (thin, slice-cut veneers of wood) which have been previously prepared for folding. One unit batch of soybeans is approximately 0.331 pound (this becomes about 0.273 pound in the finished product), and an aluminum spoon of size corresponding to this quantity is used to ladle and measure out each unit. Each unit is packed into a "kyogi" veneer sheet, which is then folded. The soybeans thus packaged are then laid in rows in flat, wooden curing boxes. Thirty units are placed in each box (this can be increased up to about 50 units).

Placing in Curing Room

The curing room has a frontage of approximately 9 feet, a front-to-back depth of 9 feet, and a height of 7 feet. Its walls are sheathed with galvanized steel and thermally insulated with sawdust. The room has swinging doors in front, and shelves are provided on both sides of the interior to hold 80 curing boxes. Inspection windows for observing the interior temperature and humidity are provided on the entrance wall. Vents, one upper and one lower, are provided also on this wall for regulating the room temperature.

For raising and maintaining the curing room temperature, charcoal is used as fuel for ease in combustion control and economy. The combustion gases generated by the burning

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of charcoal reportedly have no effect on the fermentation process.

The curing boxes are placed onto the shelves on both sides of the room, which is then sealed tightly, and the curing room temperature is maintained at 42° to 43° C. to make the soybeans ferment, a process which requires approximately 20 hours.

The optimum temperature for the reproductive multiplication of the natto bacillus is about 40° C., and the curing room temperature is maintained at a somewhat higher temperature than this so that it will not fall below 40° C. On the other hand, if the temperature becomes excessive (50° C. or higher), the product turns into the so-called "yakeru" (burned) condition, and the reproductive multiplication of the bacillus stops.

As the multiplication of the bacillus progresses, heat of fermentation is generated spontaneously, and the temperature rises. At this stage of the process, fuel heating becomes unnecessary, and the temperature can be maintained by the self-generated heat of fermentation. The curing room temperature is then regulated by adjusting the upper and lower vent openings—opening these vents to introduce outside air to replace some of the interior air when it is desired to lower the temperature.

Removal from Curing Room

When the fermentation is complete, the "natto" is taken out of the curing room and cooled. Labels are then pasted on the outside of the packages, which are then finished products.

In round numbers, 10,000 units can be expected from 12 bags of raw soybeans.

Value of Natto

Natto in which the soybean surfaces are covered uniformly with natto bacillus of ash-white color, and in which the glutinous substances are amply developed and can be drawn easily into viscous filaments when pulled apart, is considered to be of good quality. These glutinous substances of high viscosity can be drawn into filaments of as much as 1 metre or more in length when pulled apart with the finger tips.

The chemical contents of natto are as follows (according to references):

Water	61.20 %
Fat	9.69 %
Fibrous material	0.80 %
Albumen (protein)	18.10 %
Carbohydrates	7.70 %
Ash content	2.21 %

It is reported that natto bacillus suppresses the multiplication of various disease-causing bacteria within the digestive organs.

Natto's only weak point is in the fact that it cannot be preserved for long periods of time, especially in summer, when it can be kept for only 2 to 3 days. In winter, it can be kept for 7 to 10 days.

You still pay these "temporary" wartime taxes

During World War II, Congress levied special taxes on the passenger fares and freight charges paid to railroads and other forms of public for-hire transportation. One reason for these special taxes was to discourage the use of these transportation facilities in wartime.

The war ended more than ten years ago but these taxes go on – and on. They still add an extra 10 per cent to the passenger fares you pay, and they add 3 per cent to the freight charges on everything that moves by public carriers such as railroads.

The reason for these "temporary" wartime taxes vanished long ago. But they are still discouraging the use of our public transportation systems. And by so doing, these taxes are weakening our public carriers—essential to peacetime commerce and vital to national defense.

These discriminatory and burdensome taxes should be repealed – *now!*

ASSOCIATION OF
AMERICAN RAILROADS
WASHINGTON, D. C.

GRITS and FLAKES . . . *from the World of Soy*

Sprague Retires

Retirement of Paul E. Sprague, a veteran of 42 years of service with the **Glidden Co.**, has been announced by Dwight P. Joyce, chairman and president.

Paul E. Sprague

Mr. Sprague has been a vice president and director of Glidden since 1936, and for the past 10 years a member of the company's executive committee, chairman of its research committee, and executive head of the firm's southern chemical division.

Mr. Sprague began his business career as a chemist with Cleveland's Glidden Varnish Co. in 1915. Two years later the concern was purchased by Adrian Joyce and associates and became the Glidden Co.

Willard C. Lighter, who became executive vice president in December, was elected a member of the executive committee to replace Mr. Sprague.

W. David Stallcup has been elected vice president in charge of the firm's southern chemical division, and George S. Warner, controller, a director, replacing Mr. Sprague.

Mr. Joyce also announced that Clark P. Maxson was elected to the position of vice president in charge of purchases and trade relations.

Completes First Century

S. Howes Co., under the leadership of Alexis C. Barbeau, Jr., has started a second century of progress.

At its home town, Silver Creek, N. Y., 300 persons recently attended a banquet commemorating the company's 100th anniversary as one of the world's oldest and largest manufacturers of grain processing machinery.

The company, internationally-known for its "Eureka" line, was founded in 1856 by Simeon Howes. In 1896, Louis E. Barbeau, grandfather of the current president, purchased company interests from Howes' heirs. A. C. Barbeau, Jr., now in his 11th year as president, is the third member of the family to direct the firm.

Under the Barbeaus, the company established a world-wide reputation and acceptance for quality. Today, the "Eureka" line is marketed in all 48 states and throughout the Free World.

Ferrell Sales Manager

Richard B. Carr, well known in the U. S. grain industry, has joined **A. T. Ferrell & Co.** as sales manager of its new Randolph grain drier division.

Richard B. Carr

Carr goes to Saginaw, Mich., after serving the Hess Grain Drier Co. of Chicago as sales manager.

The A. T. Ferrell concern recently purchased the O. W. Randolph Co. of Toledo, Ohio, and has moved the business to its Saginaw plant where drier production, sales and service are being carried on uninterruptedly.

Meal Process Patent

The granting of U. S. Letters Patent No. 2,776,894 for "Meal Treating Process and Apparatus," issued Jan. 8, 1957, to **Central Soya Co., Inc.**, was announced by Dale W. McMillen, Jr., president.

This patent, according to Mr. McMillen, "is for refinements in both the process and the equipment used in our de-solventiznig-toasting operations in the processing of soybean oil meal and other oil meals and materials. From these refinements we are obtaining soybean meals that are exceptional in both physical and nutritional characteristics."

Joins Shanzer Staff

W. A. (Al) Timmons, Jr., has joined the sales engineering staff of **Shanzer Manufacturing Co.**

He will travel out of Kansas City, Mo., serving Missouri, Nebraska, Kansas, Colorado, Oklahoma, southern Iowa and the Texas Panhandle, for the full line of Shanzer grain drying equipment.

W. A. Timmons

His background includes over 9 years experience in plant layout and design of grain handling machinery including grain dryers and related elevator equipment.

Appointment of Robert W. Hinz to serve North and South Dakota, Minnesota, northern Iowa and Wisconsin for the complete line of **Shanzer** grain drying equipment has been announced by McKinley Bissinger, president.

Robert W. Hinz

Mr. Hinz, a graduate of the University of Minnesota School of Agriculture, brings over 10 years of experience, including elevator management, to his new post.

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Meal Sales Manager

Edward O. Paschke, Minneapolis, has been appointed sales manager of the soybean oil meal department of **Archer-Daniels-Midland Co.**

Paschke succeeds John P. Broschard, who resigned recently. Assistant sales manager of the soybean oil meal department for the past 6 years, Paschke has been with ADM since 1932, when he started as a salesman in Chicago.

Edward O. Paschke

Paul T. Fjellman, New York, ADM technical sales representative for soybean and linseed oil meals, soya specialties, is being transferred to Minneapolis, as assistant to Paschke.

Fjellman joined the company in Minneapolis in 1939 and transferred to New York in 1949.

ADM Vice Pres.

Walter C. Andrews, manager of the resin and plastics division, **Archer-Daniels-Midland Co.**, Minneapolis, has been elected a vice president of the company.

He was named to head the newly formed resin and plastics division last fall. He joined ADM in 1941 as a control chemist.

Robert S. Mathews, manager of the vinyl plasticizer department, and James W. Stowell, sales manager for soybean oil, have been named assistant vice presidents.

Mathews became manager of the vinyl plasticizer department in 1955. Before that he was sales manager for ADM's group of specialty oils. He started with the company in 1937.

Stowell joined ADM in 1943 and subsequently held various positions in the purchasing department, soya products division, and soybean oil sales division.

H. N. Shere, 63, for many years farm editor of the Champaign, Ill., News-Gazette, died recently following an extended illness. Located in the world's leading soybean country, "Doc," as he was familiarly known to thousands of people in the agricultural field, held a longtime and keen interest in the soybean crop.

The Judson Sheldon division of the National Carloading Corp. has changed its name to **Judson Sheldon International,** it is announced. Address is 1018 South Wabash Ave., Chicago 5, Ill.

Larry Wyman has joined the **Sharples Corp.,** Philadelphia, as assistant to the executive vice president, Dr. Herber Trotter, Jr.

John N. DeBoice has joined the public relations division of the **A. E. Staley Manufacturing Co.,** Decatur, Ill. He has been community relations supervisor of the Caterpillar Tractor Co. plant in Decatur since August 1955.

The board of directors of the Chicago Board of Trade has declared tank space for 1,020,000 pounds of crude soybean oil at the **Cargill, Inc.,** plant at Washington, Iowa, and 2,880,000 pounds at Cargill's Cedar Rapids, Iowa, plant regular for delivery on the Board of Trade crude soybean oil futures contracts.

Mark G. Thornburg, executive secretary of the **Western Grain & Feed Association,** Des Moines, Iowa, has asked the Association's board of directors to relieve him of active duty by July 1, stating that he feels that "younger persons should take over the activities of the Association."

Naugatuck chemical division, **U. S. Rubber Co.,** is tripling laboratory and office space at its agricultural chemical research station and experimental farm at Bethany, Conn.

Ray Collen has been named manager of the **Dannen Mills** grain office and warehouse at Omaha, Nebr. He has been associated with the Bates Grain Co. since 1944. He succeeds William McIntosh.

T. W. Brasfield, formerly agricultural chemical sales manager for Naugatuck chemical division, **U. S. Rubber Co.,** has been named Los Angeles district manager, replacing G. L. Dennis who is transferring to Naugatuck, Conn. Otto P. Steinan, formerly assistant agricultural chemical sales manager, has been named sales manager.

Walter W. McLaughlin, past president of the American Soybean Association, has been elected a vice president of the **Citizens National Bank** at Decatur, Ill. He is manager of the bank's farm service department which manages more than 36,000 acres of farm land in central Illinois.

William Arnold Sikkel has joined the agricultural division of **Stauffer Chemical Co.** as a salesman in the Midwest region. His territory includes Michigan, western Ohio and northern Indiana.

Conrad Leslie has sold **Leslie Analytical Organization,** Columbus, Ohio, to Walter English, president of the Walter English Co., Columbus, who has had 25 years experience in commodity trading. Mr Leslie became associated on Feb. 1 with Francis I. duPont & Co., working with Clarence Galvin in the Chicago office at 208 S. LaSalle St.

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- Sizes—10 to 21 ft.

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- Handles 150 lb. bags, boxes, cartons
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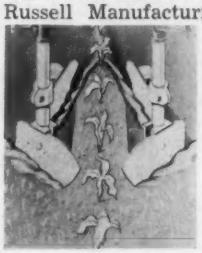
NEW PRODUCTS and SERVICES

WEED CONTROLORS. Three new models of the Russell Weed-Controlors are being introduced by the Russell Manufacturing Co. One of the new models called the Super Weed-Controlor is an improved version of the popular Weed-Controlor which was first introduced a number of years ago.



The other two are lower in price and bolt directly to the regular cultivator legs.

All three Weed-Controlors work on the same patented principle of first having a sliding blade for smoothing the ground. This front shovel clears and levels and pushes stones, weeds, crust and trash away from the row.

This smoothing and leveling action of the front shovel guarantees that the rear shovel has an even amount of clean moist soil to push into the plant row covering the weeds. Maximum cultivating accuracy is always achieved because of the uniform amount of soil.

Advantages claimed for Weed-Controlor cultivation are faster cultivating speeds, elimination of weeds in the plant rows, root and plant protection and increased crop yields.

For further information write Soybean Digest 3d, Hudson, Iowa.

COMBINES. Two new combines with a new, low look have just been announced by the Massey-Harris division of Massey-Harris-Ferguson, Inc.

The new self-propelleds, 82 and 92 Harvest Streamliners, are successors to the company's popular 80 and 90 models, and feature a low profile for greater stability and safety, and increased visibility.

Harvest Streamliners feature a horizontal air intake and muffler, lower grain tank, fold-away unloading auger, semi-enclosed operator's platform, more convenient inspection ports and a new type, flat fuel tank that doubles as an inspection and servicing platform.

For further information write Soybean Digest 3b, Hudson, Iowa.

BAG LINING. A multiwall bag lined with Alcoa aluminum foil, a product making possible the substitution of inexpensive paper sacks for costly metal or fiber shipping drums, is announced by Hudson Pulp & Paper Corp.

The new low-cost bag uses aluminum foil laminated to Kraft paper to protect products from moisture, gases and odors. Formerly this protection often required large unwieldy drums. Use of the new bags drastically reduces the shipping costs and storage requirements of the drums.

For more information concerning this package called "Foil-Wall" write Soybean Digest 3c, Hudson, Iowa.

GRINDERS. A four-page illustrated folder on Gruendler Crusher & Pulverizer Co. grinding equipment is available for the asking.

The folder describes features of Gruendler equipment with specifications. There are pictures of a number of typical Gruendler installations.

For a copy of the folder write Soybean Digest 3a, Hudson, Iowa.

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WASHINGTON DIGEST

No Early Quarantine on Nematode

By PORTER M. HEDGE

Washington Correspondent for The Soybean Digest

NEMATODE. Enlargement of the area in which the soybean cyst nematode has been found indicates that no action to quarantine any of the nematode infested areas will be taken until additional fact-finding surveys are made.

Discovery of the nematode in Arkansas has just been announced by the Department of Agriculture, making the fourth state in which the pest has been located.

At the quarantine hearing in Washington Jan. 31, there was general agreement on the need for quarantine action, USDA officials reported, to help prevent spread of the nematode.

However, it appears now that no final decision on a quarantine will come for some time. It is apparent that officials want a great deal more information on the extent of infestation before action is taken.

A couple of months ago this column unscientifically pointed to Hanover County as the original point of infestation of the disease, and said that in a matter of 2 years it had moved from the Atlantic Coast to the Mississippi River.

These lay observations have been since nailed to the mast by zealous North Carolinians who have no desire whatever to be known as the host state for any such pest as the soybean nematode.

The USDA report of the hearing brings out that "cause of the infestations in North Carolina and in the Missouri-Tennessee area is not known. It was agreed that the possibility of the nematode having spread from North Carolina to the infested counties along the Mississippi is extremely remote, and that the presence of the nematode in these two widely separated areas is more likely due to separate introductions of the pest from the Orient."

DROUTH PROGRAM. The Senate has enacted legislation which would force the Department of Agriculture to make eligible as a drouth feed in certified drouth areas cottonseed cake, meal or pellets at prices not higher than the 1956 price and in areas normally using cottonseed meal as a livestock feed.

USDA has been opposed to getting protein meals into the drouth feed program in any form. The House-passed bill left proteins out. However, Majority Leader Johnson of Texas got an amendment through on the Senate side.

The bill goes to House-Senate conferees, and if adopted would be pretty hard for the President to turn down since it is part of an appropriations measure.

Conferees had not been appointed at this writing, but the House was expected to approve the protein feed provision, even though it was the House which trimmed $10 million from the bill originally. The Senate restored this.

Unofficially, USDA says it would have to make direct distribution of cottonseed cake or meal through county ASC committees, since it has none on hand, would have no control over dealers' inventories, and it would be difficult to check on prices paid.

As the bill passed the Senate, there would be a time limit to late next summer or fall, cottonseed meal or cake only could be obtained under the drouth feed program, the meal could not be supplied at prices greater than those prevailing last year, and the meal would be made available only in those areas which normally use it as livestock feed.

P. L. 480. The 1957 rate of price support for soybeans has been established at 70% of parity, or $2.09 a bushel. Last year's rate was $2.15 a bushel.

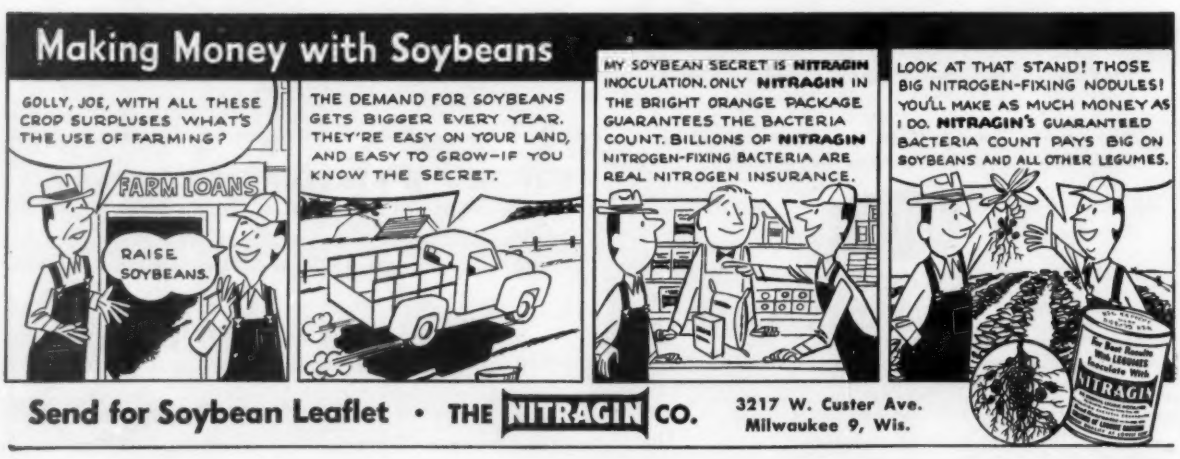
However, price support is expected to have less influence on 1957-crop soybean prices than sale of edible oils under the Public Law 480 and other foreign assistance programs.

USDA has now made a formal request for an additional $1 billion in Public Law 480 funds to continue the program for the balance of this year and into the next crop season.

Treasury Department has been opposed to this, but a congressional okay is considered certain. While the Department of Agriculture did not ask for more than $1 billion, it is widely understood to be in favor of larger appropriations for this purpose.

Farm Bureau and a number of other groups also are requesting additional 480 money, including those who see in 480 a way to increase the amount of economic aid overseas.

While Congress is in somewhat of an economy-minded mood at the present, it is considered probable that more than $1 billion will be appropriated for the 480 program before the session is over.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RAISE SOYBEANS.
THE DEMAND FOR SOYBEANS GETS BIGGER EVERY YEAR. THEY'RE EASY ON YOUR LAND, AND EASY TO GROW—IF YOU KNOW THE SECRET.
MY SOYBEAN SECRET IS NITRAGIN INOCULATION. ONLY NITRAGIN IN THE BRIGHT ORANGE PACKAGE GUARANTEES THE BACTERIA COUNT. BILLIONS OF NITRAGIN NITROGEN-FIXING BACTERIA ARE REAL NITROGEN INSURANCE.
LOOK AT THAT STAND! THOSE BIG NITROGEN-FIXING NODULES! YOU'LL MAKE AS MUCH MONEY AS I DO. NITRAGIN'S GUARANTEED BACTERIA COUNT PAYS BIG ON SOYBEANS AND ALL OTHER LEGUMES.
NITRAGIN
Send for Soybean Leaflet • THE NITRAGIN CO.
3217 W. Custer Ave.
Milwaukee 9, Wis.

TAKEOVER BEANS. USDA has restated its commitment to sell any soybeans taken over in price support operations this spring at not less than the market or price support plus stated carrying charges.

The charges are at the following rates per bushel—June 1½¢; July 3¢; August 4½¢; and September 6¢. In October a reappraisal of the soybean situation and price policy will be made.

As of mid-January 57,289,515 bushels of soybeans had been put under support. Withdrawals of 3,764,942 bushels left 53,524,573 bushels under support as of that date.

OUTLOOK. Officials in Washington who have been reasonably accurate in the past are still expressing confidence that the market for U. S. supplies of edible fats and oils will continue relatively strong for the balance of this marketing year—and well into the 1957 crop season.

Much, of course, will depend ultimately, on the amount of foreign assistance funds available.

There is plenty of demand for fats and oils products still from the United States, officials say, so long as the financing is available and there is a willingness to use it.

More of the allocations during the last three quarters of the current marketing year will be out of foreign assistance funds of one kind or another—480 or International Cooperation Administration money.

Spanish requirements are said to be not as large as a year ago but still substantial. Italian requirements are said to be greater than a year ago. Greece has asked for some additional U. S. oil. Some other countries have bids in as soon as the program gets rolling again.

A big January-February export movement of soybean and cottonseed oil is expected when the census figures are all in—possibly close to 300 million pounds. Some fall-off is expected in March, which is normal, but the total is still figured to be high.

Here's Government Support Announcment

THE U. S. DEPARTMENT of Agriculture has announced the following actions on price support for 1957-crop oilseeds:

1—Soybeans will be supported at a national average price of $2.09 per bushel, which is 70% of the Jan. 15, 1957, parity price of $2.98 per bushel.

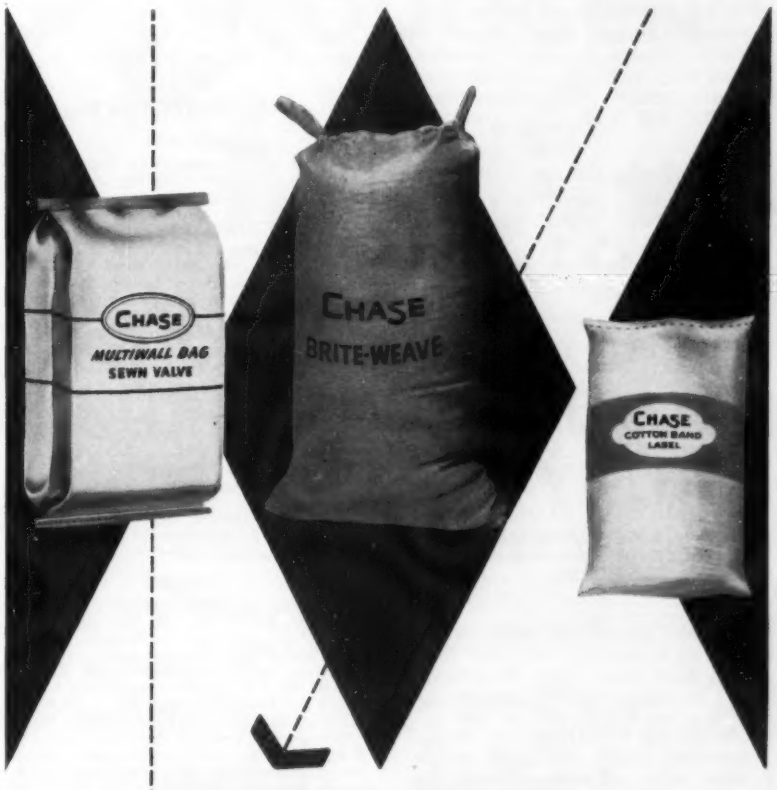
2—Flaxseed will be supported at a national average price of $2.92 per bushel, which is 65% of the Jan. 15, 1957, parity price of $4.50 per bushel.

3—Cottonseed will be supported on a basis to reflect approximately 65% of the Jan. 15, 1957, parity price of $71 per ton average quality seed.

On the 1956 crops, support for soybeans was at a national average price of $2.15 per bushel, which was 75% of the Jan. 15, 1956, parity price; support for flaxseed was at a price of $3.09 per bushel, 70% of the Jan. 15, 1956, parity price; and support for cottonseed at a loan rate of $48 per ton. The support for cottonseed reflected about 70% of the Jan. 15, 1956, parity price of $69.40 per ton average quality seed.

Price support on 1957-crop soybeans will be carried out as in the past through farm- and warehouse-stored loans and through purchase agreements. Loan and purchase agreements will be available from harvest time through Jan. 31, 1958. Maturity date for loans will be May 31, 1958.

Soybeans to be eligible for price support under the 1957 operation must be produced in 1957. Soybeans must grade No. 4 or better and contain not more than 14% moisture to be eligible for support. County support rates for soybeans with premiums and discounts by classes and for differences in quality will be made available later.



DEPENDABILITY

IN BAGS FOR YOUR SOYBEAN MEAL

CHASE BAG COMPANY

For safe shipment—low cost—in bags easy to fill, close, stack and store... always insist on *Chase* dependability. Make a single call, order any or all—any type, any size, any quantity.

CHASE MULTIWALL PAPER CHASE COTTON
CHASE BURLAP

General Sales Offices
309 W. Jackson Blvd., Chicago 6, Ill.

32 Bag Plants and Sales Offices coast to coast—a Nationwide Staff of Bag Specialists.

Our 110th Year of Bag-Making Progress.

- MARKET STREET -

We invite the readers of THE SOYBEAN DIGEST to use MARKET STREET for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here.

Rate 10c per word per issue. Minimum insertion $2.00.

SEED—LEE SOYBEANS. MISSISsippi registered and certified handrogued Lee soybeans, very low mechanical injury if any. Moisture around 12%, purity 98 plus. Germination, run in March and April, 85 plus. These quality seed are the best that can be produced, dried, fumigated, processed and treated. Bagged in 1 or 2 bu. bags. Bard Selden, Hollywood, Miss.

FOR SALE—60 CU. FT. S. HOWES horizontal mixer, rebuilt, like new. Kelly Duplex molasses blender, used very little. 15 ft. Prater drag feeder, rebuilt. McLaughlin, Ward & Co., 409 S. 23rd St., Jackson, Mich.

DR. CHEN'S FAMOUS ARTICLE, "Heart Disease and Soybeans," is now available in the reprint form. If you wish a copy, send a 3¢ stamp to Dr. Chen, South Lancaster, Mass.

FOR SALE—ALUMINUM FRAME-steel wheel gravity skate wheel conveyor; Anderson Super-Duo Expeller; 12-inch and 14-inch screw conveyors; 30-inch and 36-inch canvas and rubber belting. Carl Nussbaum, Jr., Rt. 4, Box 126, Louisville 19, Ky.

FISCHBEIN BAG CLOSERS AND repair parts, in stock for immediate shipment. McLaughlin, Ward & Co., 409 S. 23rd St., Jackson, Mich.

LAUHOFF FLAKING ROLLS—ALso single, double, two and three pair high roller mills. Ben Selby, 925 Montrose Ave., Chicago, Ill.

FOR SALE — SOYBEAN SEED, certified Clark, Wabash, wholesale, retail. Indiana certified white, yellow seed corn. Write Carl Burgdorf & Son, R. 1, Evansville, Ind.

BINS FOR EXTRA STORAGE—WE have available a limited number of surplus government type grain bins 18x16 ft. appr. 3,800 bu. H.F. Cap. at attractive prices. For particulars write Midwest Steel Products Co., Railway Exch. Bldg., Kansas City 6, Mo.

FOR SALE—500 BU. CERTIFIED Chippewa soybeans, 400 bu. registered Chippewas, 200 bu. certified Norchiefs, 400 bu. certified Grants. Certified Selkirk wheat, Garry and Rodney oats and Raja flax. Eldred Buer & Sons, Canby, Minn.

STEINLITE TESTERS, FACTORY rebuilt—reasonable. McLaughlin, Ward & Co., 409 S. 23rd St., Jackson, Mich.

BULKMASTER, AUGER TYPE unit, mounted on 1952 International, Model 184. Unit and truck both in very good condition. Priced reasonable. Phone Windsor Locks, North 8-7716. Conn. Valley Grist Mill, Suffield, Conn.

FOR SALE—40-BBL. MIDGET mill; four stand elevator, cups and belts; one flour packer; one milling separator; one scourer; one feed governor; one powder feeder. All machinery in good shape. Callaway Mill, Callaway, Minn.

SEED DIRECTORY

ARKANSAS

Burdette—G. A. Hale, Hale Seed Farms, 5,000 bu. registered Hale Ogden No. 2.

Keiser—Coleman Crews, 5,000 bu. certified Lee.

Osceola—L. C. Shelton, Rt. 3, Box 197, 2,000 bu. certified Lee.

Stuttgart—Jacob Hartz Seed Co., Inc., certified and uncertified Lee, certified and uncertified Jackson, uncertified Ogden, uncertified Dorman, uncertified JEW 45, uncertified Volstate, uncertified Mamloxi.

Twist—J. F. Twist Merc. Co., 7,500 bu. certified Lee, 4,500 bu. certified Dorman.

ILLINOIS

Ridgeway—Jones Farm Store & Elevator, 8,000 bu. Kingwa hay beans, 5,000 bu. Virginia hay beans, packed in 2-bu. bags.

St. Peter—Lester Grandt, 600 bu. Ill. registered No. 1 Lincoln, 600 bu. Ill. registered No. 2 Adams.

Waterman—Strever Seed & Grain Co., certified and uncertified Harosoy, uncertified Hawkeye, uncertified Lincoln.

INDIANA

Evansville 8—J. A. McCarty Seed Co., 526 N. W. Fourth St., certified and uncertified Clark, certified and uncertified Wabash, uncertified Kingwa.

Linton—Ben Raney Farms, 370 E. Vincennes St., 2,300 bu. certified Clark.

Muncie—Gowin Farms, Rt. 1, 1,000 bu. certified Harosoy, 500 bu. certified Clark.

Valparaiso—Wyckoff Hybrid Corn Co., R.F.D., 2,500 bu. certified Harosoy, 500 bu. certified Hawkeye, 500 bu. certified Blackhawk, 300 bu. uncertified Richland, 500 bu. uncertified Monroe.

Walton—Geo. M. Hopper, Hopper Farms, Rt. 2, 500 bu. Indiana certified red tag Harosoy.

IOWA

Alden—Arthur Wall, Rt. 2, 350 bu. certified Chippewa.

Clear Lake—S. Kennedy & Sons, 1,800 bu. Iowa blue tag certified Chippewa.

MINNESOTA

Bird Island—A. A. Ziller, 2,000 bu. registered and certified Chippewa, 200 bu. registered and certified Grant, 400 bu. registered and certified Norchief, 400 bu. registered and certified Capital, 400 bu. registered and certified Ottawa Mandarin.

East Grand Forks—Ralph D. Larson, Rt. 2, 250 bu. certified Norchief.

Fairmont—Rollo Campe, Rt. 2, 500 bu. certified Chippewa.

Fairmont—J. H. Schrooten, Rt. 1, 4,000 bu. certified and registered Chippewa, 500 bu. certified Grant.

Hartland—Sig Borge & Son, 200 bu. certified Blackhawk, 250 bu. certified Chippewa, 125 bu. certified Grant, 125 bu. certified Ottawa Mandarin.

Herman—Adolph Dvorak, 200 bu. certified Grant, 350 bu. certified Chippewa.

Lake Crystal—Wayne Othoudt, 500 bu. certified Chippewa, 300 bu. certified Grant, 100 bu. certified Blackhawk, 200 bu. certified Ottawa Mandarin.

Lake Crystal—Richard E. Wigley, Rt. 2, 700 bu. certified Chippewa.

Madison—Merlin L. Knorr, 200 bu. certified Grant, 400 bu. certified Chippewa, 300 bu. uncertified Chippewa.

Mt. Lake—A. F. Loewen, Rt. 1, Box 81, 200 bu. certified Chippewa.

St. Peter—Gilbert F. Hoehn, Rt. 2, 800 bu. certified Chippewa, 500 bu. uncertified Renville.

West Concord—Victor Emerson, 300 bu. certified Grant, 250 bu. certified Chippewa.

MISSISSIPPI

Hattiesburg — Leo W. Klarr, Ellkay Farms, Rt. 1, 6,000 bu. certified and uncertified Jackson, 2,000 bu. certified and uncertified Lee, 1,000 bu. uncertified Dorman.

Hollywood—Bard Selden, 1,000 bu. Mississippi registered Lee.

Iuka—W. J. Brinkley, Box 218, 200 bu. certified Lee.

MISSOURI

Eureka—Emil L. Wallach, Rt. 1, 1,000 bu. certified Clark, January 1957 germination 84%.

St. Louis—Cypress Land Farms Co., 8129 Delmar Blvd., 2,000 bu. uncertified Clark, 500 bu. certified Clark, 2,000 bu. uncertified Ogden, 4,000 bu. uncertified Dorman, 500 bu. uncertified S-100, 500 bu. uncertified Perry.

NORTH CAROLINA

Selma—Gurley Milling Co., Box 488, Ph. 2303, 10,000 bu. uncertified Lee, 5,000 bu. certified Lee, 10,000 bu. uncertified Roanoke, 5,000 bu. uncertified Clemson 4s and 24s, 5,000 bu. uncertified JEW 45, 5,000 bu. uncertified Jackson, 2,000 bu. certified Jackson, 5,000 bu. uncertified Ogden, 2,000 bu. certified Ogden, 5,000 bu. uncertified Black Wilson, 5,000 bu. uncertified Otootan.

NORTH DAKOTA

Barney—Edd. Goerger, 1,000 bu. certified Capital, 1,000 bu. certified blue tag Norchief in bags, 300 bu. certified blue tag Chippewa in bags.

Leonard—Edw. F. Manthei, 3,000 bu. certified Hardome.

OHIO

Covington—Ebberts Field Seed Co., 5,000 bu. certified Hawkeye.

SOUTH CAROLINA

Hartsville—Boyd Hicks, Rt. 2, 400 bu. uncertified Lee.

Orangeburg—Shuler & Smoak, Inc., 3,000 bu. uncertified JEW 45, 1,000 bu. uncertified Clemson CNS 24.

St. Matthews—L. B. Wannamaker Seed Co., Box 194, 10,000 bu. certified Lee, 8,000 bu. certified Jackson, 3,000 bu. certified CNS 24, 10,000 bu. uncertified JEW 45.

SOUTH DAKOTA

Aurora—Kennis Wheeler, 1,000 bu. certified Chippewa.

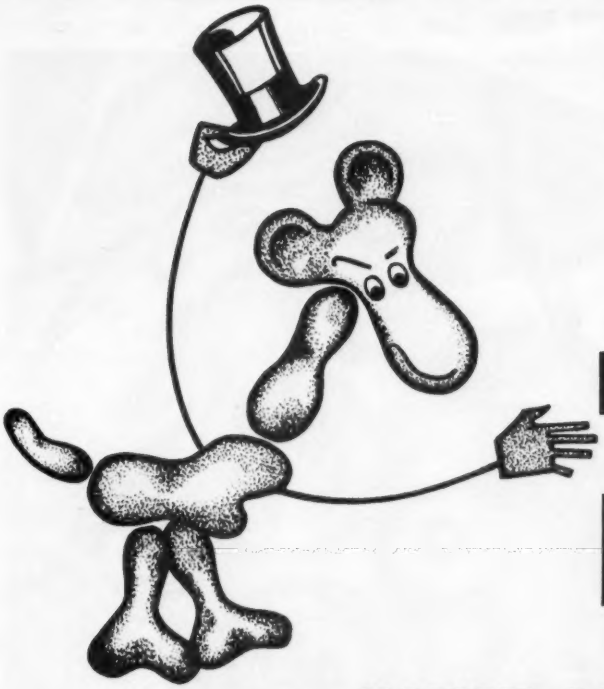
VIRGINIA

Richmond 16—T. W. Wood & Sons, 11 South 14th St., certified and uncertified Ogden, uncertified Early Wood's Yellow, uncertified Jackson, certified and uncertified Lee.

ONTARIO

Chatham—St. Clair Grain & Feeds Limited, Box 330, 2,000 bu. registered No. 1 Chippewa, 1,000 bu. registered No. 1 Lincoln, 1,500 bu. registered No. 1 Hardome.

One of a series of advertisements appearing in



NODOGEN'S Mr. Fixo

says—INSIST ON NODOGEN, THE PRE-TESTED NITROGEN INOCULATION FOR BEST POSSIBLE SOYBEAN YIELDS

A 25 bushel crop of beans contains 125 pounds of nitrogen. This nitrogen must come from your soil or from the air. Get it FREE from the air–inoculate your beans with NODOGEN.

Soy beans without nodules are "soil robbers"; inoculated beans are "soil builders." USE THE BEST–USE NODOGEN!

NODOGEN LABORATORIES
BOX 788—CHICAGO 90, ILLINOIS

One of a series of advertisements appearing in **Business Week** as part of **Glidden Chemurgy's** continuing efforts to expand the market for soy products

How manufacturers improve products because GLIDDEN GIVES BETTER MILEAGE FROM THE SOYBEAN

Soybean derivatives may help improve your product and reduce production costs —just as they have for petroleum in the family car, foods in the picnic basket, and even rubber and plastic parts in the portable radio. Reason—Glidden Chemurgy has taken soybeans out of the dream stage for almost every industry you can name.

In the BUILDING MATERIALS industry, Glidden *Alpha Protein*® helps the manufacturer of insulating board produce a waterproof, durable board that can be painted without difficulty. Because *Alpha Protein* has a high tolerance for other ingredients in the coating, it reduces coating and waterproofing from two operations to one—a saving in both production time and cost. *Alpha Protein* is also used in the manufacture of almost all the washable wallpaper produced in the United States, in coating high-quality printing paper, and in the manufacture of latex-base paints.

And . . . Glidden is the *leading* soybean processor continuing operations beyond the crude products level, to produce *special-purpose* derivatives that may help improve your product. Call or write Glidden Technical Service for ideas and assistance.

USES OF THE SOYBEAN IN INDUSTRY:

ADHESIVE
In paints, paper, plywood, wallpaper, insulating board, floor coverings

BLENDER
In chewing gum, petroleum

DISPERSING AGENT
In instant foods, paint, varnish, rubber and plastics, shortening

EMULSIFIER
Baked goods, margarine, petroleum, textiles, soap, cosmetics, pharmaceuticals

NUTRITIVE SUPPLEMENT
In foods, pharmaceuticals

PARTING AGENT
In rubber and plastics

PENETRATING AGENT
In soaps and cosmetics

Glidden

CHEMURGY DIVISION

THE GLIDDEN COMPANY

1825 North Laramie Avenue • Chicago 39, Illinois

MANUFACTURERS OF INDUSTRIAL AND EDIBLE SOY FLOURS AND PROTEIN, CRUDE AND SPECIAL-PURPOSE LECITHINS, STEROIDS, SOYBEAN MEAL AND OILS.

LATE REPORTS

Primary receipts (1,000 bu.) of soybeans at important interior points for week ending:

	Jan. 25	Feb. 1	Feb. 8	Feb. 15	Feb. 21
Chicago	405	414	200	190	256
Indianapolis	74	111	90	68	49
Kansas City	105	77	96	91	79
Milwaukee	.....	1	.....	.....	.....
Minneapolis	154	95	140	56	55
Omaha	74	20	11	9	15
Peoria	59	34	19	46	14
Sioux City	37	22	4	15	3
St. Joseph	29	25	14	24	10
St. Louis	26	15	21	16	13
Toledo	109	169	231	146	97
Totals	1,072	963	826	661	591
Last year	1,049	1,170	1,180	1,323	1,142
Total Chicago soybean stocks	6,067	5,924	5,620	5,415	5,243

INSPECTIONS. Soybeans, inspected by grades and percent, as reported by Agricultural Marketing Service.[1]

Grade	Oct.-Jan. 1955-56		Oct.-Jan. 1956-57		January 1956		December 1956		January 1957[2]	
	1,000 bu.	Pct.	1,000 bu.	Pct.	1,000 bu.	Pct.	1,000 bu.	Pct.	1,000 bu.	Pct.
No. 1	32,672	19	28,485	16	5,091	24	3,788	13	4,495	18
No. 2	84,120	49	69,216	40	10,692	50	11,992	42	10,907	45
No. 3	36,596	22	41,255	24	3,985	18	7,176	25	4,895	20
No. 4	13,292	8	24,958	14	1,333	6	3,606	13	2,479	10
Sample	3,845	2	10,613	6	478	2	1,867	7	1,621	7
Total	170,525	100	174,527	100	21,579	100	28,429	100	24,397	100

[1] Carlot receipts have been converted to bushels on the basis that 1 carlot equals 1,750 bushels. [2] Of the January 1957 receipts, 6,163 bushels were black, 3,642 mixed, and the remainder yellow soybeans. Inspections of soybeans in January included 2,800,000 bushels as cargo lots, 1,594,180 bushels as truck receipts, and the balance as carlot receipts. Based on reports of inspections by licensed grain inspectors at all markets.

STOCKS. Agricultural Marketing Service's commercial grain stocks reports for close of business on Friday or Saturday preceding date of report (1,000 bu.

	Jan. 29	Feb. 5	Feb. 12	Feb. 19	Feb. 26
U. S. grain in store and afloat at domestic markets					
Atlantic Coast	1,955	1,689	1,796	1,555	1,559
Gulf Coast	917	640	945	1,439	862
Northwestern and Upper Lake	1,453	1,512	1,524	1,677	1,636
Lower Lake	7,000	6,911	6,683	6,521	6,659
East Central	1,877	1,746	1,574	1,560	1,395
West Central Southwestern & Western	835	828	840	812	733
Total current week	14,037	13,326	13,362	13,564	12,844
Total year ago	22,194	21,442	21,267	21,541	21,958
U. S. soybeans in store and afloat at Canadian markets					
Total current week	337	311	287	254	227
Total year ago	645	620	595	587	547
Total North American commercial soybean stocks					
Current week	14,374	13,637	13,649	13,818	13,071
Year ago	22,839	22,062	21,862	22,128	22,505

SHORTENING. Standard shortening shipments reported by the Institute of Shortening and Edible Oils, Inc., in pounds.

Jan. 26	26,135,198
Feb. 2	27,744,994
Feb. 9	25,072,742

PROCESSING OPERATIONS. Reported by Bureau of the Census for December and January.

Primary products except crude oil at crude oil mill locations: Production, shipments and transfers, and stocks, January 1957-December 1956 (tons of 2,000 lbs.)

	Production January		Shipments and transfers		Stocks end of month	
Soybean:	Jan. 1957	Dec. 1956	Jan. 1957	Dec. 1956	Jan. 31, 1957	Dec. 31, 1956
Cake and meal	674,906	643,840	682,011	629,919	58,299	65,404
Flour	8,505	8,629	8,619	9,166	2,686	2,780
Lecithin	1,631	1,487	(NA)	(NA)	1,390	1,205

NA—Not available.

Soybeans: Net receipts, crushings, and stocks at oil mills, by states, January 1957-December 1956 (Tons of 2,000 lbs.)

	Net receipts at mills		Crushed or used		Stocks at mills	
	January 1957	December 1956	January 1957	December 1956	Jan. 31, 1957	Dec. 31, 1956
U. S.	707,459	543,150	852,585	809,631	1,965,503	2,110,629
Illinois	314,477	199,977	309,163	295,105	719,741	714,427
Indiana	51,612	29,960	83,708	76,903	153,594	185,690
Iowa	127,228	109,226	131,060	139,055	180,330	184,162
Kansas	(1)	(1)	(1)	(1)	8,108	13,027
Kentucky	9,058	8,668	22,573	20,633	(1)	(1)
Minnesota	72,818	46,442	71,864	55,728	30,403	29,449
Missouri	25,388	12,336	32,152	31,044	95,439	102,203
Nebraska	(1)	(1)	.....	.....	(1)	(1)
North Carolina	3,448	16,872	6,350	4,464	38,853	41,755
Ohio	53,910	43,408	82,351	88,197	216,775	245,216
Texas	(1)	(1)	(1)	.....	(1)	(1)
All other	49,520	81,261	113,364	98,502	522,260	594,700

[1] Included in "All other" to avoid disclosure of figures for individual companies.

Soybean products: Production and stocks at oil mill locations, by states, January 1957-December 1956

	Crude oil (thousands of pounds) Production		Crude oil (thousands of pounds) Stocks		Cake and meal (tons) Production		Cake and meal (tons) Stocks	
	January 1957	December 1956	Jan. 31, 1957	Dec. 31, 1956	January 1957	December 1956	Jan. 31, 1957	Dec. 31, 1956
U. S.	305,156	289,736	60,823	60,010	674,906	643,840	58,299	65,404
Illinois	113,944	109,275	21,000	20,336	237,932	228,507	17,940	28,786
Indiana	30,015	27,871	5,139	6,411	66,829	62,028	3,906	3,650
Iowa	47,291	49,749	8,415	11,195	107,944	115,494	8,953	8,279
Kansas	(1)	(1)	937	580	(1)	(1)	(1)	414
Kentucky	8,234	7,449	(1)	(1)	17,958	16,291	1,005	(1)
Minnesota	24,458	18,183	5,763	8,262	57,808	45,453	7,693	2,276
Missouri	11,643	11,153	2,548	1,475	26,416	25,663	2,491	1,808
Nebraska	.....	.....	(1)	(1)	.....	.....	(1)	(1)
N. Carolina	1,812	1,348	627	664	4,819	3,347	1,054	822
Ohio	28,426	30,266	3,802	3,778	66,199	69,782	3,206	6,458
Texas	(1)	.....	(1)	.....	(1)	.....	(1)	.....
All other	39,333	34,442	12,592	7,309	89,001	77,275	12,049	12,911

[1] Included in "All other" to avoid disclosure of figures for individual companies.

Mitchell, Hutchins & Co.

SPECIALISTS IN COMMODITY FUTURES—

—CATERING TO THE SOYBEAN INDUSTRY

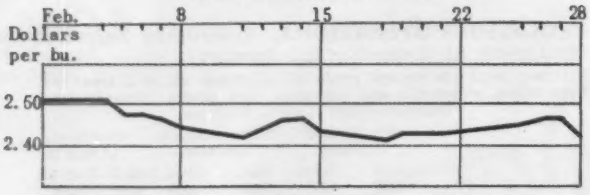
113 S. Court Ave.
Memphis, Tenn.
Jackson 7-1603

231 S. LASALLE ST.
CHICAGO 4, ILL.
STATE 2-1700

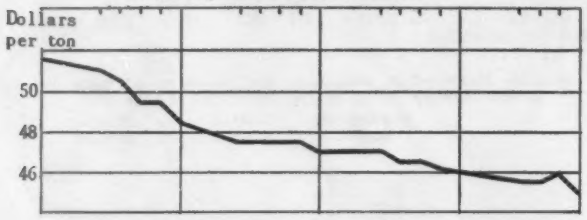
One Wall St.
New York, N. Y.
Digby 4-0700

DAILY MARKET PRICES

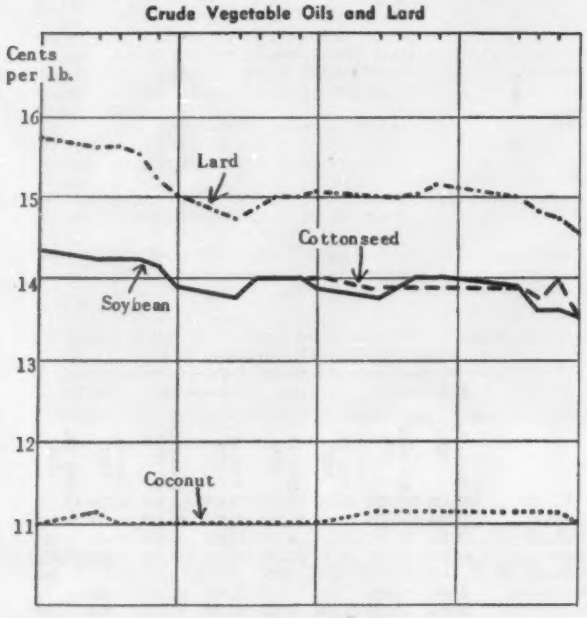
No. 1 Cash Soybeans, Chicago



Bulk Soybean Oil Meal, Decatur

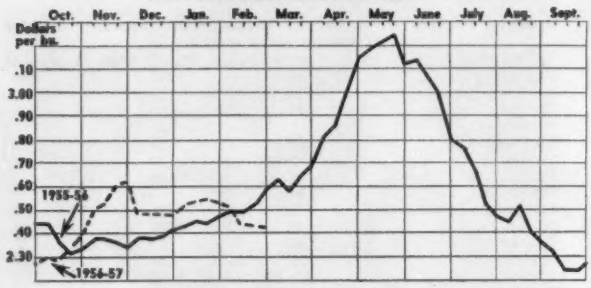


Crude Vegetable Oils and Lard

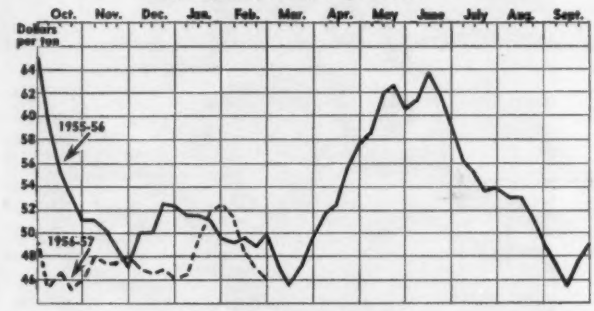


TRENDS AT A GLANCE (Weekly Close)

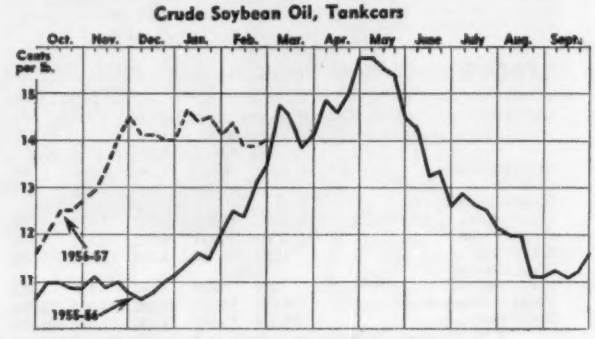
No. 1 Cash Soybeans, Chicago



Bulk Soybean Oil Meal, Decatur



Crude Soybean Oil, Tankcars



February Markets

FEBRUARY saw a reversal in the upward trend of the soybean oil meal market, and meal lost all its January gains. There were also smaller losses in beans and oils.

Strongest market influences were a poor demand for meal and the lack of any outstanding new export business in oil and beans.

Bearish factors that affected the market in February:

1—The government's Feb. 15 announcement that it would sell soybeans taken over under the price support program at the local loan rate plus 1½¢ per month carrying charge, this charge being somewhat less than the cost to carry actual grain, and USDA's recommendation that producers market supplies more freely.

2—The record size of farm supplies and the prospect of a sizable carryover of beans into the next crop year.

3—The East Coast dock strike.

4—Announcement of lower price props for the 1957 soybean crop.

Bullish influences:

1—The Senate's vote to include cottonseed meal in the emergency livestock feeding program in drouth disaster areas.

2—Light country offerings of beans.

3—A processing margin that is better than a year ago, and continued heavy processing operations.

BYPRODUCTS. The price of soybean fatty acids remained at 15¼¢ per pound during January. Acid soybean soap stock delivered Midwest advanced from 6¼¢ to 6⅜¢, and raw soybean soap stock from 2¼¢ to 2⅜¢ per pound.

1956 SOYBEAN CROP POSITION

	Jan. 15, 1957	Jan. 15, 1956
Total soybeans placed under government support....	57,289,515 bu.	26,926,878 bu.
Total soybeans withdrawn from support	3,764,942 bu.	
	Oct. 1, 1956-Jan. 31, 1957	**Oct. 1, 1955-Jan. 31, 1956**
Soybeans crushed Oct. 1-Feb. 1	109,926,000 bu.	99,105,000
	Oct. 1, 1956-Feb. 15, 1957	**Oct. 1, 1955-Feb. 15, 1956**
Total soybeans inspected for overseas export and shipped to Canada	48,291,000 bu.	42,294,000 bu.

For details see "Late Reports" on preceding page and "In the Markets" beginning page 44.

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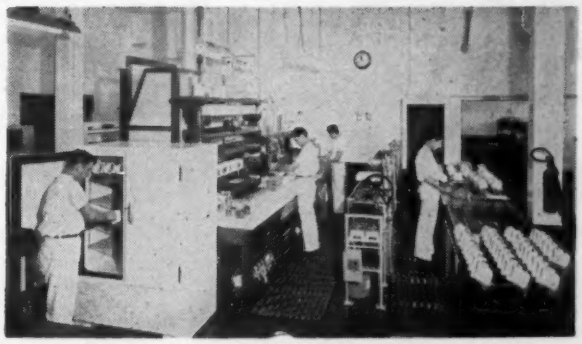

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IN THE MARKETS

PRICES. Average prices for soybeans received by farmers, effective parity, and support rates (dollars per bushel), reported by Agricultural Marketing Service.

Average farm price			Effective parity	Av. price as percent of parity	National average price support rate		
Jan. 15 1956	Dec. 15 1956	Jan. 15 1957	Jan. 15 1957	Jan. 15 1957	1954 crop	1955 crop	1956 crop
2.19	2.27	2.31	2.98	78	2.22	2.04	2.15

Average farm and parity prices from crop reporting board.

*** Soybeans, No. 2 yellow: Average monthly price per bushel at Illinois country shipping points, 1951 to date (dollars)**

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg.
1951-52	2.80	2.90	2.95	2.90	2.90	2.88	2.82	2.92	3.17	3.22	3.25	2.98	2.97
1952-53	2.85	2.89	2.90	2.85	2.82	2.94	2.95	2.87	2.76	2.56	2.55	2.47	2.78
1953-54	2.57	2.83	2.99	3.03	3.17	3.49	3.80	3.63	3.66	3.70	3.55	2.72	3.26
1954-55	2.69	2.74	2.73	2.74	2.74	2.63	2.54	2.46	2.42	2.36	2.39	2.84	2.56
1955-56	2.22	2.19	2.27	2.35	2.45	2.56	2.85	3.10	2.97	2.54	2.40	2.18	2.51
1956-57	2.21	2.42	2.39	2.43									

* Quotations are for No. 1 yellow soybeans since the latter part September 1953.

EXPORTS. Preliminary data on U. S. exports of soybeans and soybean oil for December 1956, with comparable data for December 1955 and cumulative totals for the marketing years 1955-56 and 1956-57, reported by Foreign Agricultural Service, U. S. Department of Agriculture.

	Unit	December 1955	December 1956	October-December 1955-56	October-December 1956-57
Soybeans	bu.	12,669,648	15,879,248	34,723,643	36,114,682
Soybean oil:					
Crude	lb.	759,390	42,119,585	4,805,901	76,559,135
Refined but not further processed	lb.	4,780,705	6,384,687	10,316,526	13,761,389
Refined, deodorized and hydrogenated	lb.	49,163,882	51,098,979	82,762,276	130,338,637
Total beans and oil, bean equivalent basis	lb.	17,946,574	25,264,701	44,147,088	56,998,576

Soybeans: Inspection for overseas export by ports and country of destination Jan. 21-Feb. 15. Reported by Agricultural Marketing Service (bushels)

	Philadelphia	Baltimore	Norfolk	New Orleans	Mobile	Port Allen, La.	Total
Israel	363,067						363,067
France	221,361	37,334					258,695
Holland	18,293	28,000	549,901	471,966			1,068,160
Denmark	100,000	631,594	300,000				1,031,594
Norway		36,580	74,667	74,667			185,914
Japan				882,955	327,453	375,783	1,586,191
Belgium		125,533	67,200	112,000	48,533		353,266
United Kingdom	166,133	112,000					278,133
West Germany		151,648	74,666			18,667	244,981
Formosa				356,410			356,410
Total	868,854	1,122,689	1,066,434	1,897,998	375,986	394,450	5,726,411

Cottonseed and soybean oils, total exports and the quantity shipped under Title I, P. L. 480 programs to date

Period[1]	Total	Under Title I Quantity	Under Title I Percent of total
	Mil. lb.	Mil lb.	Percent
Oct. 1954-Sept. 1955	760	117	15
Oct. 1955-Sept. 1956	1,173	567	48
Oct. 1955-Dec. 1955	227	63	28
Oct. 1956-Dec. 1956 [2]	354	126	36
Total	2,287	811	35

[1] Exports under Title I began in May 1955. [2] December is preliminary.

Exports of fats and oils under Title I, P. L. 480 in October-December 1956 (Mil. lbs.)

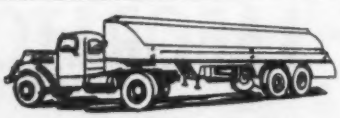
Country	Edible oils: Cottonseed	Soybean	Total	Lard	Tallow	Linseed oil
Chile	16.9	4.1	21.0			
China, Rep. of					9.3	
Ecuador	.6		.6			
Greece		13.2	13.2			
Israel					1.1	
Italy		15.6	15.6			
Pakistan						[1] 0.1
Paraguay	2.0		2.0	1.5		
Spain		53.7	53.7		2.2	
Turkey	16.5		19.5			
Yugoslavia	.2	.2	.4			
Total	39.2	86.8	126.0	1.5	12.6	0.1

[1] .4 million since July 1, 1956, the beginning of the present marketing year for linseed oil. Foreign Agricultural Service, USDA.

SUPPLY AND DISPOSITION of the 1951-56 soybean crops, reported by Agricultural Marketing Service.

Item	Year beginning Oct. 1: 1951	1952	1953	1954	1955	1956[1]
	Million bushels					
Production	283.8	298.8	269.2	341.1	373.5	456
Total supply, Oct. 1	287.9	302.4	279.3	342.4	383.5	460
Less seed and feed[2]	22.9	26.0	25.1	22.8	29.9	30
October-December						
Crushings	67.9	65.9	62.3	65.1	74.7	82
Exports	7.3	13.9	23.6	27.5	34.7	37
Jan. 1, supply remaining	189.9	196.6	168.3	227.0	244.2	311
January-September						
Crushings	176.5	168.5	150.8	183.9	208.5	243
Exports	9.8	18.0	16.0	33.1	32.0	38
Ending stocks	3.6	10.1	1.3	9.9	3.7	25-30
October-September totals						
Crushings	244.4	234.4	213.2	249.0	283.1	325
Exports	17.1	31.9	39.7	60.6	66.8	75
Price per bushel			Dollars			
Support	2.45	2.56	2.56	2.22	2.04	2.15
Received by farmers	2.73	2.72	2.73	2.46	2.22	[3]2.22

[1] October-December is partly estimated. Disposition through the rest of the crop year is forecast. [2] Includes residual. [3] Preliminary.



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MOLINE, ILLINOIS

PRICE SUPPORT. 1956-crop soybeans put under price support and loans withdrawn from support as of Jan. 15, reported by Agricultural Marketing Service, USDA (1,000 bu.)

Quantity put under loan			Quantity of loans withdrawn from support	Purchase agreements	Total put under support 1956-57[1]	Total put under support 1955-56[1]
Farm stored	Warehouse stored	Total				
26,525	29,620	56,145	3,765	1,145	57,290	26,927

[1] Total placed under price support is the sum of the total put under loans and purchase agreements through Jan. 15.

Loan and purchase agreement figures for 1956-crop soybeans through Jan. 15, 1957, for the 30 states which have reported:

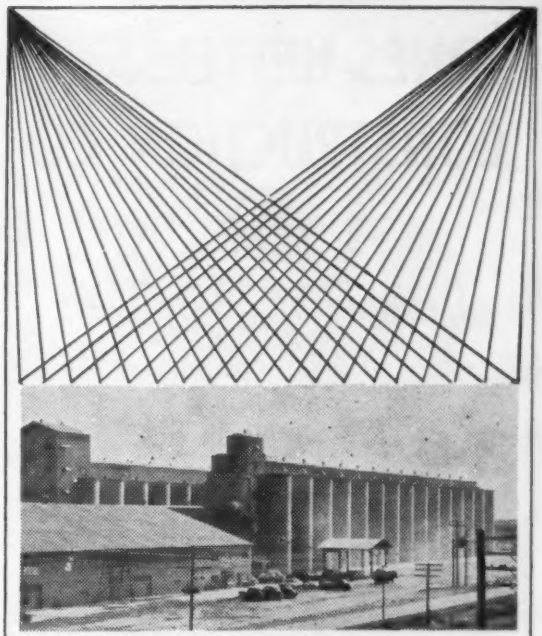
State	Loans stored		Purchase agreements	Total quantity put under support program
	Warehouse	Farm		
	Bushels			
Alabama	2,845	9,240	0	12,085
Arizona	0	1,298	0	1,298
Arkansas	1,092,177	554,320	19,027	1,665,524
Delaware	0	5,694	0	5,694
Florida	1,670	0	0	1,670
Georgia	16,859	10,175	300	27,334
Illinois	7,337,539	4,285,856	393,783	12,017,178
Indiana	755,076	2,197,822	45,060	2,997,958
Iowa	8,008,624	7,994,797	237,382	16,240,803
Kansas	11,106	117,489	1,200	129,795
Kentucky	116,862	51,991	0	168,853
Louisiana	0	22,551	0	22,551
Maryland	0	3,219	0	3,219
Michigan	25,668	77,121	7,932	110,721
Minnesota	7,441,142	6,315,482	206,748	13,963,372
Mississippi	270,003	281,934	500	552,437
Missouri	2,491,610	2,683,939	45,314	5,220,863
Nebraska	41,332	121,090	2,650	165,072
New Jersey	0	6,520	0	6,520
North Carolina	2,367	83,737	0	86,104
North Dakota	314,225	323,635	140,651	778,511
Ohio	976,922	836,365	8,384	1,821,671
Oklahoma	9,789	5,871	0	15,660
Pennsylvania	0	1,252	0	1,252
South Carolina	99,354	143,041	3,000	245,395
South Dakota	123,718	291,779	10,586	426,083
Tennessee	470,471	56,680	21,950	549,101
Texas	0	120	0	120
Virginia	0	3,395	0	3,395
Wisconsin	10,375	38,371	530	49,276
Total bushels	29,619,734	26,524,784	1,144,997	57,289,515

FACTORY USE VEGETABLE OILS for December. Reported by Bureau of the Census (1,000 lbs.)

Factory consumption of vegetable oils, by uses, during December 1956

Item	Edible products			Inedible products			
	Shortening	Margarine	Other edible	Soap	Paint and varnish	Lubricants and similar oils[1]	Other inedible[2]
Cottonseed, crude	.....	.....	.....	.....	.....	(3)	.....
Cottonseed, refined	11,651	3,508	2,143	.....	(3)	(3)	231
Peanut, refined	.....	(3)	520	.....	.....	.....	243
Corn, crude	.....	.....	.....	.....	.....	(3)	.....
Corn, refined	.....	.....	9,738	.....	(3)	.....	.....
Soybean, crude	.....	.....	.....	86	390	(3)	1,775
Soybean, refined	34,017	6,011	4,281	.....	6,854	26	6,877
Foots, vegetable, raw and acidulated (100% basis)	.....	.....	.....	1,555	128	412	1,127
Hydrogenated vegetable oils, edible:							
Cottonseed	14,792	25,317	.....	.....	.....	.....	.....
Soybean	28,084	60,133	862	.....	(3)	.....	.....
Other	1,545	.....	762	.....	.....	.....	.....

[1] Includes quantities consumed in lubricants, greases, cutting oils, dielectric oils, core oils, brake fluids, and metal working. [2] Quantities consumed in linoleum and animal feeds are included in the above totals. Data for fats and oils consumed in chemicals and linoleum and oilcloth, which were previously shown separately, are now included in "Other inedible" while quantities consumed in core oils, cutting oils, brake fluids, dielectric oils, and metal working, formerly included in this total, are now classified in "Lubricants and similar oils." [3] Not shown to avoid disclosure of figures for individual companies.



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1952-53	2.85	2.89	2.90	2.85	2.82	2.94	2.95	2.87	2.76	2.56	2.55	2.47	2.78
1953-54	2.57	2.63	2.99	3.03	3.17	3.49	3.80	3.63	3.66	3.70	3.55	2.72	3.26
1954-55	2.69	2.74	2.73	2.74	2.74	2.63	2.54	2.46	2.42	2.36	2.39	2.84	2.56
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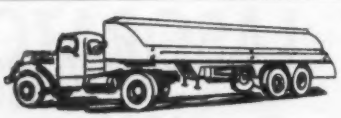

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MOLINE, ILLINOIS

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	Warehouse	Farm		
	Bushels			
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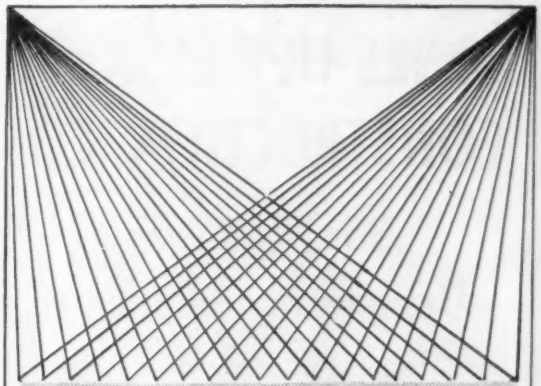
Arizona	0	1,298	0	1,298
Arkansas	1,092,177	554,320	19,027	1,665,524
Delaware	0	5,694	0	5,694
Florida	1,670	0	0	1,670
Georgia	16,859	10,175	300	27,334
Illinois	7,337,539	4,285,856	393,783	12,017,178
Indiana	755,076	2,197,822	45,060	2,997,958
Iowa	8,008,624	7,994,797	237,382	16,240,803
Kansas	11,106	117,489	1,200	129,795
Kentucky	116,862	51,991	0	168,853
Louisiana	0	22,551	0	22,551
Maryland	0	3,219	0	3,219
Michigan	25,668	77,121	7,932	110,721
Minnesota	7,441,142	6,315,482	206,748	13,963,372
Mississippi	270,003	281,934	500	552,437
Missouri	2,491,610	2,683,939	45,314	5,220,863
Nebraska	41,332	121,090	2,650	165,072
New Jersey	0	6,520	0	6,520
North Carolina	2,367	83,737	0	86,104
North Dakota	314,225	323,635	140,651	778,511
Ohio	976,922	836,365	8,384	1,821,671
Oklahoma	9,789	5,871	0	15,660
Pennsylvania	0	1,252	0	1,252
South Carolina	99,354	143,041	3,000	245,395
South Dakota	123,718	291,779	10,586	426,083
Tennessee	470,471	56,680	21,950	549,101
Texas	0	120	0	120
Virginia	0	3,395	0	3,395
Wisconsin	10,375	38,371	530	49,276
Total bushels	29,619,734	26,524,784	1,144,997	57,289,515

FACTORY USE VEGETABLE OILS for December. Reported by Bureau of the Census (1,000 lbs.)

Factory consumption of vegetable oils, by uses, during December 1956

Item	Edible products			Inedible products			
	Shortening	Margarine	Other edible	Soap	Paint and varnish	Lubricants and similar oils[1]	Other inedible[2]
Cottonseed, crude	.....	.....	.....	.....	.....	(3)	.....
Cottonseed, refined	11,651	3,508	2,143	.....	(3)	(3)	231
Peanut, refined	.....	(3)	520	.....	.....	.....	243
Corn, crude	.....	.....	.....	.....	.....	(3)	.....
Corn, refined	.....	.....	9,738	.....	(3)	.....	.....
Soybean, crude	.....	.....	.....	86	390	(3)	1,775
Soybean, refined	34,017	6,011	4,281	.....	6,854	26	6,877
Foots, vegetable, raw and acidulated (100% basis)	.....	.....	.....	1,555	128	412	1,127
Hydrogenated vegetable oils, edible:							
Cottonseed	14,792	25,317	.....	.....	.....	.....	.....
Soybean	28,084	60,133	862	.....	(3)	.....	.....
Other	1,545	.....	762	.....	.....	.....	.....

[1] Includes quantities consumed in lubricants, greases, cutting oils, dielectric oils, core oils, brake fluids, and metal working. [2] Quantities consumed in linoleum and animal feeds are included in the above totals. Data for fats and oils consumed in chemicals and linoleum and oilcloth, which were previously shown separately, are now included in "Other inedible" while quantities consumed in core oils, cutting oils, brake fluids, dielectric oils, and metal working, formerly included in this total, are now classified in "Lubricants and similar oils." [3] Not shown to avoid disclosure of figures for individual companies.



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DID YOU KNOW?

The value of soybean futures traded in commodity markets is consistently greater than the trading in any other commodity. In the 1955-56 fiscal year the value of soybean futures traded totaled $14.7 billion, according to the Department of Agriculture. This was almost equal to the combined total value of corn and cotton, the next two ranking commodities.

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Consumption of vegetable foots in fat splitting (1,000 lbs.)

1956			1955	
Dec.	Nov.	Jan.-Dec. Cumulative	Dec.	Jan.-Dec. Cumulative
8,284	7,687	99,262	7,868	115,587

SOURCE: U. S. Census Bureau

MEAL PRODUCTION, STOCKS, EXPORTS. Production of the five major oilseed cakes and meals in October-December 1956 totaled 3,107,000 tons, 5% larger than in the same period of 1955 and the largest of record for the quarter, according to Agricultural Marketing Service. The increase over 1955 was due entirely to the heavy output of soybean meal which totaled 1,932,000 tons for the quarter, 220,000 tons more than last year, and a monthly average rate of 644,000 tons.

Production of soybean meal is expected to continue heavy through the 1956-57 season and may show less seasonal decline than usual in the latter part of the marketing year. Based on present crushing prospects, the output for the entire 1956-57 season is expected to total around 7,500,000 tons.

The output of cottonseed meal during October-December totaled 948,000 tons, 68,000 tons less than a year earlier. Production of the other oilseed meals totaled about as large in October-December this year as last, and probably will be about the same for the entire feeding seasons.

The heavy production of soybean meal during October-December has moved into consumption without a buildup of stocks at crushers' plants.

Exports of oilseed meal during October-December are estimated to have been about 100,000 tons under the very heavy export of 320,000 in that quarter of 1955. While soybean meal exports, preliminarily estimated at about 170,000 tons, were about 30,000 tons larger than a year earlier, exports of other oilseed meals were much smaller.

Production, stocks and foreign trade in protein feeds, November and December 1956, with comparisons[1] (1,000 tons)

Production

Commodity	1955-56 season[3]	Nov. 1955	Sept.	1956 Oct.	Nov.
Byproduct feeds					
Soybean cake and meal	6,545.8	583.6	459.5	657.1	631.4
Cottonseed cake and meal	2,628.1	370.6	249.1	346.3	327.7
Linseed cake and meal	581.7	59.3	42.1	74.5	60.0
Peanut cake and meal	57.5	1.4	1.6	1.2	1.9
Copra cake and meal	112.2	9.3	8.6	12.5	9.2
Total	9,925.3	1,024.2	760.9	1,091.7	1,030.2

Stocks[2]

Commodity	Oct. 1, 1955	Dec. 1, 1955	1956 Oct. 1	Nov. 1	Dec. 1
Byproduct feeds					
Soybean cake and meal	37.2	59.8	111.3	57.2	51.5
Cottonseed cake and meal	150.2	173.7	140.9	170.8	186.1
Linseed cake and meal	21.7	16.7	11.8	15.8	19.3
Peanut cake and meal	.5	.9	1.9	1.0	1.3
Copra cake and meal	3.9	4.5	1.3	2.2	1.3
Total	213.5	255.6	267.2	247.0	259.5

Foreign trade

	Imports					Exports				
	1955-56 season[3]	Nov. 1955	Sept.	1956 Oct.	Nov.	1955-56 season[3]	Nov. 1955	Sept.	1956 Oct.	Nov.
Soybean cake and meal	(4)	0	0	0	0	400.1	45.3	31.5	57.9	55.4
Cottonseed cake and meal	59.4	1.4	6.4	6.4	5.4	155.4	33.3	6.1	5.2	6.8
Linseed cake and meal	0	0	0	0	0	152.6	22.3	15.2	6.9	11.9
Peanut cake and meal	0	0	0	0	0	18.1	.2	3.3	.9	.7
Copra cake and meal	44.9	5.0	1.4	3.5	5.0	0	0	0	0	0
Total	104.3	6.4	7.8	9.9	10.4	726.2	101.1	56.1	70.9	74.8

[1] Data compiled from reports of the Bureau of the Census, Agricultural Marketing Service, Fish and Wildlife Service of the Department of the Interior, and Price Waterhouse & Co., N. Y. [2] At processors' plants. [3] October-September. [4] Less than 500 tons.

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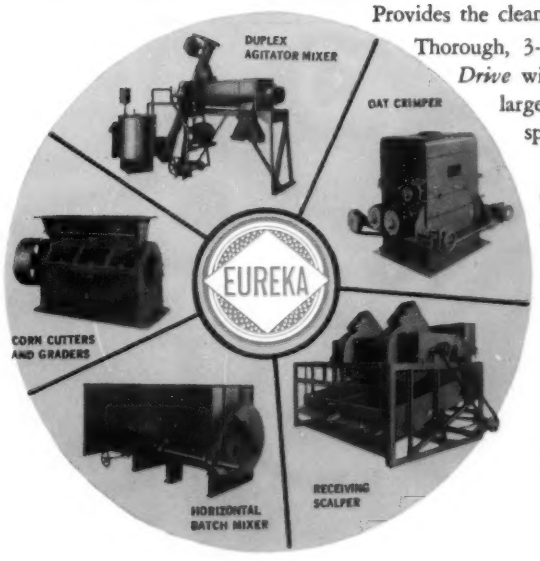

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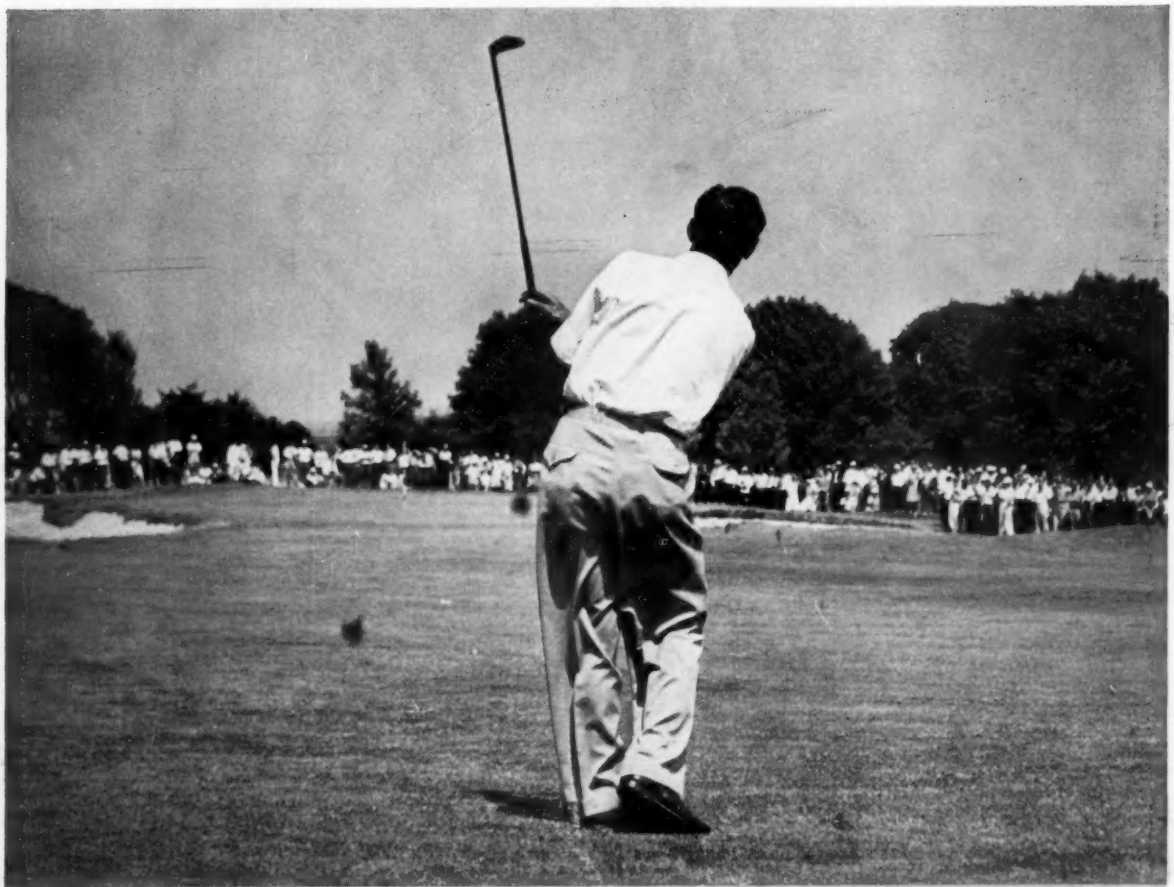

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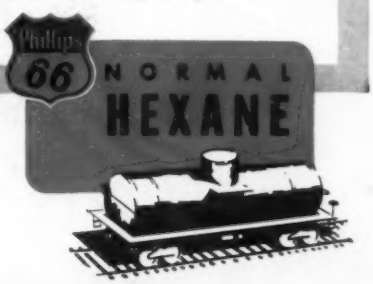

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